Web bound – How does the use of ICT support the involvement of children, their families/whānau and their teachers in assessment for learning?

A dissertation submitted in partial fulfilment of the requirements for the Degree

of Master of Teaching and Learning

in the University of Canterbury

By Vicky E. Wilson

University of Canterbury

2011

Table of Contents

List of Tables

Acknowledgements

I would like to thank my supervisors Dr Alexandra Gunn and Dr Donna Morrow for their wisdom and clarity. You were a constant source of guidance, thoughtful provocation and patience.

To my teaching colleagues I thank you for your support by participating in the study and your understanding that sometimes my thinking and teaching time was stretched in two directions. To the Senior Leadership Team/Management, I thank you for your support and generosity which enabled me to complete my dissertation.

To my mother and father, you have both been an inspiration to me and have given me the courage to be true to myself and the strength to achieve my goals.

To my wonderful husband Nigel I thank you with all of my heart for your unwavering belief in me and supporting me to follow my dream. I am all yours again. To my precious daughters Bethany and Emmajae I thank you for believing in me, cooking your own dinner and leaving me to it.

To Julie, thank you my friend for your endless patience, for your proof reading and your never-ending words of support and encouragement. Your turn now!

Abstract

This small scale qualitative case study reports on how ICT (a webpage) could support the involvement of children, their families/whānau and their teachers in assessment for learning. The study investigated whether change occurred in the assessment for learning processes of a kindergarten after establishing a webpage. The study was carried out in a nonprofit state owned kindergarten where children aged 3-5 years attended. The participants were three children and their families and three of the teachers from the kindergarten. The data was collected using narrative observations, questionnaires, semi-structured interviews and a field diary. The data was collected over three phases over a six month period. Phase A - before the webpage, Phase B - during the set up of the webpage and Phase C - after the webpage had been in use for three months. The data was analysed during and after each phase and drawn together at the end of the study to present the stories of the participants. Basic content analysis was used to look for reoccurring themes or patterning as well as any contradictions or dissimilar views.

The findings suggest that the webpage (ICT) provided some benefits such as a more convenient way of accessing information for some family members and extended family/whānau, extra opportunities for children to revisit their learning and to be active participants in building new collaborative knowledge. The findings identified that the webpage was not as accessible to children as their learning portfolios and that the value of the webpage, as a tool for accessing assessment for learning, was different for each of the families and the teachers.

Glossary

Assessment for Learning. Also called formative assessment. The process of observing children and documenting information about children's learning. It includes multiple views of the child and the child is fully involved in the process.

Blog. A place on the webpage where families/whānau and teachers could write messages.

Centre. The kindergarten or early education provider.

Documentation. The gathering and presentation of children's learning.

E-Portfolio. An electronic portfolio that provides a representation of children's learning and development over a period of time.

ERO. Education Review Office. ERO reviews schools and early childhood education services, and publishes national reports on current education practice.

ICT. Information and Communication Technology. Anything that allows us to gather information, communicate with each other or to have an effect on the environment using electronic or digital equipment.

Kei tua o te pae. A publication of early childhood exemplars of sociocultural and formative assessment.

Portfolio. A representation of children's learning and development over a period of time.

Te Whāriki. The early childhood curriculum document of Aotearoa New Zealand

Webpage. An electronic page accessed through the internet which allows users to provide and/or share data.

Whānau . The extended family, parents or caregivers of the children.

Chapter One: Introduction

Introduction

This dissertation reports on a small scale case study of how ICT could support the involvement of children, their families/whānau and teachers in assessment for learning. The study investigated whether change occurred in the assessment for learning processes of a kindergarten after establishing a webpage. As an introduction to this study I present a general introduction, the background of the study and the overall structure of the dissertation.

Technology or ICT (information and communication technologies) can be defined as "anything which allows us to get information, to communicate with each other, or to have an effect on the environment using electronic or digital equipment" (Bolstad, 2004, p.vii). ICT also "describes the equipment (hardware) and computer programmes (software) that allows us to access, retrieve, store, organise, share and present information electronically" (Ministry of Education, 2005, p.4). In terms of these descriptors, ICT can mean a broad range of tools that allows teachers, children and families/whānau to access and share information in new and innovative ways.

As a teacher in a well resourced kindergarten, I had begun to reflect on how we could use our ICT to further benefit children and their families/whānau. At the same time the kindergarten was visited by the Education Review Office (ERO) and they recommended that the voice of children and their families/whānau could be more evident in children's assessment for learning. This prompted me to look more closely at our assessment processes and to investigate how we could improve them by using ICT. Our teaching team

engaged in discussions around this and a colleague carried out a small survey with families/whānau. The survey revealed there were some barriers to accessing information and it was identified that we could use ICT (such as emailing or using a webpage) to rectify this.

Our use of ICT in early childhood fits well with the expectations of the Ministry of Education. Following recommendations from the New Zealand Education Institute (NZEI) to integrate ICT into the early childhood sector the Ministry of Education called for feedback from the early childhood education sector and commissioned a review of literature to provide guidelines surrounding the effective use of ICT in early childhood. The data received provided the basis for the publication of *Foundations for discovery: Supporting learning in early childhood education through information and communication technologies: A framework for development* (Ministry of Education, 2005). [Hereafter called *the framework*]. *The framework* suggests that having ICT in the early learning environment will provide benefits such as: making children's learning visible; increasing children's participation in the assessment process; and the greater involvement of families/whānau (Ministry of Education, 2005).

Sitting alongside *the framework* advocating for the use of ICT in early childhood education, is the curriculum document of Aotearoa New Zealand *Te Whāriki: He Whāriki: Mātauranga mō ngā mokopuna o Aotearoa: Early childhood curriculum* (Ministry of Education, 1996). This was mandated into the education sector in 2008 along with the new regulations and licensing criteria. *Te Whāriki* provides guidelines for providing quality education which includes: reflecting the culture of children; assessment practices that

include children and their families/whānau; making children's learning visible; viewing each child holistically as an individual; and involving family/whānau in the curriculum (Ministry of Education, 1996).

The framework and *Te Whāriki* sit alongside each other and provide a context and arguments for utilising ICT in early childhood. The ability to increase children's participation in the assessment process and the greater involvement of families/whānau in the children's learning environment (Ministry of Education, 1996; Ministry of Education, 2005) are two identified benefits of ICT in early childhood education. Evidence of these benefits are also apparent in international studies (Boardman, 2007; Hong & Trepanier-Street, 2004; Kankaanrantra, 2001; Kristovich, Hertzog & Klein, 1998; Walters, 2006).

Within the literature is the notion of how the involvement of children in the assessment process leads to children viewing themselves as confident and competent learners (Fleer, Edwards, Hammer, Kennedy, Ridgeway, Robbins, & Surman, 2006; Katz & Chard, 1996; Ministry of Education, 1996; Ministry of Education, 2004) and having a sense of belonging (Walters, 2006). There is also evidence of how the participation of families/whānau in the assessment process can strengthen the partnership between families/whānau and the learning environment (Biddulph, Biddulph & Biddulph, 2003; Grant, 2009; Ministry of Education, 1996).

Background of the Study

The study was carried out in a state kindergarten which has been given the pseudonym of Green Road Kindergarten. The impetus for the study was derived from the desire to create

an assessment for learning environment that reflected the voices of teachers, children and families/whānau. Further to this was the teachers desire to integrate the ICT available to us that we felt was being under utilised. Several writers suggest ICT is a cultural tool that should be situated within the learning environment (du Fall, 2006; Mawson, 2003; Moran & Tegano, 2005; Siraj-Blatchford & Whitebread, 2003). Through integrating ICT in a meaningful way children are able to assimilate and construct their own knowledge about it. Whilst interacting with ICT children are interacting on an individual level, often as part of a group of learners and through the culture of their time and context. They are actively creating their culture as well as participating in it (Fleer, 2002).

At the time of this study, the children attending Green Road Kindergarten each had a portfolio (a record of their learning and development) which contained narrative learning stories, conversations predominately between children, samples of children's art work, identified learning based on previously decided dispositions, and provided a summary with an individual plan/goal developed in consultation with family/whānau. I also believed the children at Green Road kindergarten were interested in ICT which encouraged me to try to integrate ICT into the assessment process.

After some discussion within my kindergarten it was decided I would set up a webpage. It is the study of how utilising a webpage could support children, their families/whānau and their teachers in assessment for learning that forms the basis of this dissertation.

Structure of the Dissertation

This dissertation reports on the study undertaken to address the research questions of how ICT (a webpage) could support the involvement of children, their families/whānau and their teachers in assessment for learning and the sub-questions:

1. How are children and their families/whānau involved in the assessment for learning process?
2. How do teachers involve children and their families/whānau in the children's assessment for learning?
3. What do children and their families/whānau value in the assessment for learning process?
4. How do children and their families/whānau access information?

The literature review in Chapter Two begins with an overall introduction followed by a discussion on ICT including integrating ICT in a meaningful way, its use in documenting learning, strengthening partnerships in the learning community and developing shared understandings. The chapter continues with an overview of how ICT is recognised as a cultural tool and identifying some of the contrasting views about ICT in early childhood. The chapter includes a discussion on the role of the teacher in utilising ICT effectively and how it can be used in assessment for learning. This is followed by an acknowledgement of sociocultural theory and how it relates to ICT, assessment for learning and this study. Finally, consideration is given to how ICT can be integrated to enhance the children's learning environment and followed by an overall conclusion. Chapter Three describes the methodology that was chosen for this study. I discuss how the study sits within a qualitative research paradigm and is underpinned by a constructivist epistemology. The

case study method is examined and both the strengths and limitations of the data collection tools used are identified. This is followed by an explanation of how the data was analysed. Chapter four presents the findings of the study. These are arranged under the identified themes that emerged from the data analysis (being involved, decision making, values, and making learning visible and accessible). The findings address the research question and sub-questions of the study and are presented to reflect any post-web changes. This is followed by a discussion of the findings as they relate to the identified themes. I present a conclusion of the findings which is followed by the implications this may have for children, their families/whānau, and their teachers. I also address the limitations of the study, propose further research possibilities and conclude with my final thoughts.

Chapter Two: Literature Review

This chapter discusses the literature and research that has informed this study. I begin with an overview of current research and literature then present the links to theory that underpin early childhood education, ICT, assessment for learning and this study. This is followed by the argument for including ICT in early childhood education. I conclude the chapter by discussing the benefits of weaving ICT and assessment into the lives of children, teachers and families/whānau.

Setting up the Webpage: An Introduction to the Literature

Research carried out both nationally and internationally has provided a solid foundation to draw information from to guide this research as there is no shortage of literature surrounding ICT or assessment for learning.

A review of literature commissioned by the Ministry of Education relating to ICT in early childhood education was carried out in Aotearoa New Zealand and identified three key reasons for ICT being more evident in early childhood environments –

1. ICT already has an effect on the people and the environment that surrounds children's learning.
2. These technologies offer new opportunities to strengthen many aspects of early childhood education practice.
3. There is support and interest across the whole education sector for the development and integration of ICT into education policy, curriculum and practice.

(Bolstad, 2004, p.2).

There are further identified benefits for children that have emerged from other national and international literature about ICT in early childhood. For example, children benefit when ICT is integrated into any activity in a meaningful way, when ICT is used for the documentation of learning, when ICT is used to strengthen the partnership between teachers and the family/whānau, and when ICT helps develop shared understandings. The use of ICT also reflects the theories and culture evident in early childhood in Aotearoa/New Zealand.

Integrating ICT in a meaningful way into the early childhood programme.

A case study of five kindergarten age children carried out by Colbert (2006) found that when children integrate ICT in a meaningful way such as story writing they are aligned with the sociocultural practice of their learning being situated in everyday practices of the home and community. "Children's interest in storytelling and their exposure to using ICT offer an opportunity to support their literacy learning in a sociocultural manner, by sharing events and interactions with people, places and things" (Colbert, 2006, p.4). Such studies report on how ICT supports the family/whānau members who are able to physically be involved in an early childhood learning centre, but what about the family members who are unable to visit the early childhood centre? For fathers who work away from home and grandparents that live overseas? One solution is to use ICT in more innovative ways such as displaying photographs on a webpage to inform others in the learning community about children's learning (Good, 2005).

Lee, Hatherly & Ramsey (2002) have discovered other innovative uses of ICT. In their study of the use of ICT in a New Zealand kindergarten, they found that ICT is valuable and

has benefits when integrated into the curriculum or assessment processes. They maintain that ICT has improved the way families/whānau can be involved in the learning of the children. Through ICT "family members are encouraged to share their perceptions of their child's learning" (Lee et al., 2002, p.13). The study highlighted how contributions from the child, the parents and sometimes siblings were documented using ICT to provide a deeper, more complex, holistic view of the child's learning (Lee et al., 2002).

Using ICT to document learning.

Some literature identifies that ICT is predominately being used by teachers to document children's learning and strengthen the partnerships between families/whānau and schools (Boardman, 2007; Colbert, 2006; Hong & Trepanier-Street, 2004; Kristovich et al., 1998; Lee et al., 2002). When teachers authentically document children's assessment for learning they view the child both holistically and in context. A holistic approach will include multiple views of each child and their many strengths and interests. The context is equally important as children may display different strengths and interests in different contexts. Including the family/whānau in the assessment process adds another layer of complexity. Computers, digital cameras, videos, stories, email, blog and webpages provide a way to do this while making learning visible and accessible (Boardman, 2007; Colbert, 2006; Hong & Trepanier-Street, 2004; Katz & Chard, 1996; Kristovich et al., 1998; Lee et al., 2002).

Kristovich et al., (1998) carried out a small scale study over a decade ago which used a web page to document children's learning and connect families with projects the children were involved in during their time at school. This small study did not reflect the mainstream early childhood sector as it was undertaken at a primary school affiliated with the local

university. The school ran an early childhood programme for gifted (high academic achievers) learners and used the inquiry based (or project approach) model of learning. Researchers found that using the webpage to document children's learning provided multiple opportunities for families/whānau to view children's learning and engage in discussions about that learning (Kristovich et al., 1998). It is interesting to note that although the researchers found that using technology fostered communication between parents and children this did not happen without a high level of support and expertise from the university and the families (Kristovich et al., 1998). Marsh & Parveen's study (as cited in Grant, 2009) was carried out more recently and also identified the usefulness of ICT (having a blog page) to connect distant families and communities and to share children's interests and learning.

Using ICT to strengthen partnerships in early childhood learning communities.

A case study carried out by Hong & Trepanier-Street (2004) identified one way that technology was used to strengthen partnerships in early childhood practice. Through using technology in conjunction with a project-approach to learning, collaboration between parents, children and teachers was truly evident. In this study children's projects were documented as they progressed which allowed for input from teachers, children and parents. This information was posted on a webpage which enabled information to be shared by extended families as well as other early childhood communities. As well as strengthening partnerships children's learning became more meaningful through its visibility. Both teachers and children engaged in more reflective thinking and family's participation was increased through their involvement in the project (Hong & Trepanier-Street, 2004).

Another study investigated the use of ICT to encourage children, their families/whānau and teachers to collaborate in the assessment processes. Boardman (2007) investigated the use of digital technologies by 29 kindergarten teachers. The study gathered data through recording conversations between dyads of either the teacher and a child or a child with another child over a ten week period. The recorded interactions were of the learning processes as they occurred. This was followed by three semi-structured group interviews. Boardman (2007) found that "capturing the child's voice is a critical component of the documentation and assessment process" (p.65). It provided a tool for children to immediately revisit and reflect on their learning. Using digital technologies (ICT) also provided a way of compiling 'authentic' data reflecting joint understandings and the collaborative building of knowledge (Boardman, 2007). This small scale research study is only a beginning to discovering and understanding ways that ICT can also be used to document children's learning (Boardman, 2007). However a similar finding was identified through researching the use of photography in early childhood. Clark (2005) asserts that a photograph provides not only a child's voice but also a means of promoting discussion with peers, teachers and families thereby adding depth and complexity to the assessment process.

Using ICT to develop shared understandings.

There is also an increasing amount of studies that have identified the benefits of using ICT in children's learning as a means of developing shared understandings (Boardman, 2007; Chung & Walsh, 2006; Colbert, 2006; Hong & Trepanier-Street, 2004; Moran & Tegano, 2005; Pelletier, Reeve & Halewood, 2006). When shared understandings develop the learning is meaningful for all those involved. There is not just individual knowledge rather

group knowledge (or a community of learners) is created. An example of this occurring with ICT was documented by Hong & Trepanier-Street (2004) who found that the integration of ICT into a Reggio Emilia inspired learning environment provided benefits for both children and student teachers. "The children found things in the software that the teachers did not know and actually taught the teachers" (Hong & Trepanier-Street, 2004, p.89).

How ICT is recognised as a cultural tool.

Within the literature is also the idea that ICT is a cultural tool. If culture is evident through the artefacts and systems we create (Mawson, 2003) then ICT is a cultural tool. ICT becomes evident not only from the culture that has created it but also within a future culture which the current children in early childhood will create. Following on from this is the idea that there is a digital literacy. *The framework* for ICT in early childhood education suggests digital literacy is "akin to literacy and numeracy skills" (du Fall, 2006, p.15; Ministry of Education, 2005). When a language is used often enough and embedded into cultural practices, it becomes literacy. Digital literacy has its own language, syntax, discourse and codes. Digital literacies include online tools such as multimedia, interactive Websites, and ICT (Pelletier et al., 2006). The awareness of ICT as a cultural tool or digital literacy implies the necessity for educators to provide a learning environment that reflects the culture and literacies of the children coming to early childhood centers especially when a 'child-centered' approach to teaching is advocated for (Zevenbergen & Logan, 2008).

Another concept worth exploring is how different children might be because of the cultural context they are growing up in. Culligan (2003) uses a term borrowed from Prensky (2001)

to describe the children of today as ‘digital natives’. While there are discrepancies about the actual impacts growing up in a technologically rich environment has on young children (Zevenbergen, 2007) we only need to look around to see the social realities. Young children have access to i-phones, computers, internet, games, blogging and instant messages or feedback. They come to kindergarten with their own cell phones, computer games and digital cameras. These children’s experiences are vastly different from those who grew up waiting for an envelope to arrive in the mail for over a week. This term ‘digital native’ applied by Marc Prensky (2001) suggests that current and future generations may have developed ways of thinking and processing information that is different from previous generations. It would then be an imperative that teachers provide children with opportunities to learn skills that will enable them to become lifelong learners in a rapidly changing world (Ministry of Education, 1996; Ministry of Education, 2005).

Further studies have identified other ways that using technology can reflect sociocultural practices. For example, Pelletier et al. (2006) carried out an action research study using the internet as a learning environment with four-year-olds. The children created photo journals and added text to them using a computer keyboard or by dictating to a teacher. This study enabled children to become investigators and build knowledge in topics they were interested in; they added to each other’s ideas and knowledge; they constructed their own knowledge; and observed how others constructed their knowledge. This is another example where children gained both individual knowledge and group knowledge (Pelletier et al., 2006). This sociocultural learning environment reflected the goal of the teachers to “create a learning environment that allows for discussion and shared understandings” using ICT (Pelletier et al., 2006, p.326). This study also suggests “when children are working

together with the assistance of supportive technology, they are collectively building knowledge" (Pelletier et al., 2006, p.326). This concept is shared by Sheridan & Pramling-Samuelsson (2003) who suggest "children learn through the computer and from each other" (p.280). Similar research carried out by Colbert (2006) and Chung & Walsh (2006) found that collaboration existed to a lesser degree. Where Pelletier et al., (2006) found that collaboration can include many, especially when innovative uses of ICT are employed; Colbert (2006) and Chung & Walsh (2006) found collaboration only existed within a dyad of either one teacher and one child or two peers.

The role of the teacher in utilising ICT effectively.

There is the identification through research that one of the most influential factors in the successful implementation of ICT in early childhood is the knowledge, skills, values and beliefs of teachers (Boardman, 2007; Dakich, 2008; Kankaanrantra & Kangassalo, 2003; Lee et al., 2002; Morrow & Mackey, 2008). Research suggests teachers can benefit from the provision of professional development to learn more about ICT, its benefits and ways of integrating it into the programme to involve children and their families/whānau (Morrow & Mackey, 2008; Phelps & Graham, 2004). Research carried out by Phelps & Graham (2004) on the benefits of using a whole school metacognitive approach to professional development identified that reflection, support and the willingness to change were key factors in the successful uptake of technology. Although carried out in mainly primary schools (and two secondary schools) the findings can be applied to early childhood teachers especially as they often have collective professional development opportunities. As Kankaanrantra (2001) found, early childhood teachers were most successful at learning

about ICT when highly motivated and supported by a community of learners with a common goal.

Using ICT to Notice, Recognise and Respond

ICT can be used to implement sociocultural practices such as assessment for learning. 'Assessment for learning' is a term that has been adopted by the Ministry of Education in the publication of *Kei tua o te pae* (Ministry of Education, 2004), and is what other writers may call 'formative assessment'. Formative assessment includes the following indicators:- Self assessment; Negotiation of learning goals; Feedback to identify next steps; Peer assessment; Feedback to support learning; Developing an intrinsic motivation to learn (Gardner, 2006).

For formative assessment to reflect the values of the early childhood sector it should be based on sociocultural practices. When assessment for learning is based on sociocultural practice, the following determinants will be present-

1. A focus on strengthening the dispositions associated with the five strands of *Te Whāriki:* Well-being; Belonging; Contribution, Communication; and Exploration.
2. It should build on children's strengths and interests.
3. Assessment should include children's voices.
4. Assessment should be understandable to children and families/whānau; should involve families/whānau and should be accessible to children and their families/whānau.

   (Stuart, Aitken, Gould & Meade, 2008).

In the early childhood sector, assessment for learning highlights the importance of teachers noticing, recognising and responding (Cowie, 2000 as cited in Ministry of Education, 2004, Book one). These descriptors can be further understood from Margaret Carr's (2001) literature about the definitions of assessment. Initially influenced by the work of Mary Jane Drummond where assessment is described as "The ways in which, in our everyday practice, we observe children's learning, strive to understand it, and then put our understanding to good use (Drummond, 1993, p.13, as cited in Carr, 2001, p.19), Carr went on to develop her own descriptions of assessment based on four characteristics:

> It is about everyday practice (in this place)
>
> It is observation-based (including talking to children)
>
> It requires an interpretation, and
>
> It points the way to better teaching and learning
>
> (Carr, 2001, p.19).

Assessment that includes as many aspects and views of the child as possible and makes learning truly visible is assessment that can be viewed as holistic, realistic, empowering, authentic and sociocultural. ICT provides a medium through which these things can occur. It allows for instant revisiting and reflection to take place, the inclusion of multiple voices and access by a greater number of those within the child's community of learners.

Acknowledging the contrasting views about ICT and early childhood.

Not all literature supports the use of ICT in early childhood. Writers such as Miller & Almon (2009) do not advocate for the inclusion of technology into the early childhood curriculum. Rather they encourage us to reflect on the true value of learning through play

and how this can provide opportunities that will increase children's language skills, social skills, and imagination. Ljung-Djärf (2008) also argues that it is the teachers underlying purpose and management of the computer that influences positive outcomes for children. Further opposition of ICT in early childhood comes from Cordes & Miller (2000) who insist there is almost no evidence of educational benefits from using computers unless children have English as a second language or special educational needs. There is also an identification through research that the benefits to children are dependent on the teachers values, skills and beliefs, both personally and professionally (Kankaanrantra, 2001; Morrow & Mackey, 2008).

From the studies considered here we can conclude that there are some benefits of using ICT in early childhood. In sum it has benefits such as:-

Documenting learning:

Collaboration within assessment;

Strengthening home school partnerships;

Developing shared understandings;

The inclusion of families/whānau in the programme evaluation and development;

Reflecting children's current social and cultural context: and

Allowing those who are physically removed to share in children's learning.

Some writers have suggested that before ICT is incorporated into early childhood there should be critical reflection on its purpose (Bolstad, 2004; Stephen & Plowman, 2003) and

further empirical work should be carried out in Aotearoa New Zealand to truly understand the potential of ICT (Brown & Murray, 2006).

The use of ICT in early childhood has been a subject of discussion for more than two decades. Early writings touted the benefits of ICT without substantial support from evidence-based research (Stephen & Plowman, 2003). However more recent writing clearly cites the benefits of ICT when it is used in a meaningful, integrated way within the curriculum (Colbert, 2006; Hong & Trepanier-Street, 2004; Pelletier et al., 2006).

Recent research also suggests other benefits of including ICT in the programme such as: - "Learning about ICT; Developing schemas; Problem solving, persistence and motivation; Social skills and peer tutoring; Creativity" (O'Hara, 2008, p.33). However the literature reviewed here suggests that although multiple studies are being carried out both nationally and internationally, there is as yet, no clear evidence that ICT is necessary in the early childhood learning environment. Rather there is the suggestion that ICT is useful when used in meaningful ways. It is imperative that teachers are critical of their own practices and philosophical understandings relating to ICT and must strive to empower children to also be critical and reflective thinkers about the ICT tools they use (Brown & Murray, 2006; Gibbons, 2008; Lindsay, 2006).

Connecting to Technology: A Discussion on Theory

A sociocultural approach to learning and assessment is evident in the documents that underpin early childhood education (Ministry of Education, 1996; Ministry of Education, 2004; Ministry of Education, 2007; Ministry of Education, 2009a). This section discusses

the current theories of early childhood education in Aotearoa New Zealand and the links these have to ICT, assessment for learning and the study.

Sociocultural theory and ICT.

I believe the use of ICT in early childhood education links clearly to the key ideas of principle theorists associated with current early childhood teaching and learning theories in Aotearoa New Zealand. Rogoff and Vygotsky's sociocultural theory, derived from constructivist theories, and Bronfenbrenner's ecological model of development all underpin the early childhood curriculum, research in the educational environment and assessment exemplars (Carr, Hatherly, Lee & Ramsey, 2003; Ministry of Education, 1996; Ministry of Education, 2004; Rogoff, 2003; Smith, 1998).

In Aotearoa New Zealand there is a high expectation that early childhood experiences will include using technology such as computers in a socially and culturally meaningful way (Ministry of Education, 1996; Ministry of Education, 2005). A sociocultural approach to learning focuses on the relationships a child develops within different contexts. The relationships can be with people, places or things (Ministry of Education, 1996). Through relationships children develop knowledge about the world they live in. As identified by Bronfenbrenner children are influenced through the relationships occurring between different contexts; the interactions and beliefs of the adults in their world and the nation's values and beliefs about children and education (Ministry of Education, 1996). This study spans two of the learning environments (home and the early childhood centre) each child is part of. A sociocultural approach recognises that the relationships within and between

these two contexts are influential for children's learning, development and construction of knowledge (Ministry of Education, 1996).

Like Bronfenbrenner, the sociocultural theories of Vygotsky and Rogoff also provide a framework within which ICT can easily be placed. When children learn they are active participants influenced by and through the context they are in. Building on Vygotsky's initial view of learning being socially and culturally constructed, Rogoff also suggests learning includes not just the individual but also the other people within the community the child is a part of and the sociocultural context defining these people (Rogoff, 2003). The way in which this relates to ICT can be explained through the following example. When using ICT to acquire knowledge learning can also include:

> Knowledge about computers
>
> Knowledge of something that can be learned through the computer
>
> Knowledge of how we learn when using computers and
>
> Knowledge of how computers can affect people's lives
>
> (Hayes, 2006, p.8)

A sociocultural approach acknowledges the cultural tools or artefacts that are present in the learning environment (Rogoff, 2003). These can be symbolic such as literacies or concrete such as digital cameras and computers (ICT). Hayes (2006) describes this as ICT being "encultured…it is a product of culture and used by culture as a symbol for other aspects of culture" (Hayes, 2006, p.8).

This sociocultural approach to learning is evidenced through research carried out in a New Zealand kindergarten. By using ICT to document children's stories teachers were able to "weave literacy practice into the lives of children in an authentic way" (Colbert, 2006, p.3). Not only did ICT provide a tool for children to make sense of their world, and share their ideas with others in different contexts, it also supported children's developing skills in literacy.

Sociocultural theory and assessment for learning.

In Aotearoa New Zealand assessment for learning is also based on social and cultural practices. The publication of *Kei tua o te pae – Assessment for learning: Early childhood exemplars* (Ministry of Education, 2004) provides an abundance of information on how sociocultural assessment can be beneficial to children, their families/whānau and teachers. The exemplars that are given in *Kei tua o te pae* are highly contextual and "reflect the social and cultural worlds of children" (Ministry of Education, 2004, p.4, Book 2). To provide assessment for learning that is holistic and authentic there should also be input from as many contexts as possible that each child is part of (Carr, 2001; Cullen, 2001; Ministry of Education, 1996; Ministry of Education, 2004; Rameka, 2007). This creates a multifaceted lens with which to view each child through. The sociocultural approach to assessment allows the assessment for learning that takes place in Aotearoa New Zealand to also reflect our bicultural heritage. Rameka (2007), when discussing a Māori approach to assessment processes, identifies that "whānau are integral to the teaching and learning process and so are fundamental to the assessment process" (p.10).

Sociocultural theory and this study.

The social and cultural environment that I am part of as a teacher contains the tools and artefacts of our time. I am referring specifically, in this instance, to ICT. As identified by Rogoff (2003) children are not only influenced by the context they are part of, they also exert some agency to influence the relationships and activities within their contexts. The relationships and interactions each child has with ICT will influence the knowledge that they construct about ICT (Kirkpatrick, 2008) now and in the future. This makes it apparent that this study be underpinned by a sociocultural approach where ICT is recognised as an integral part of children's social and educational contexts.

Bringing it Together: How ICT and Assessment can be Integrated to Enhance Children's Learning Environment

The argument for ICT in early childhood.

Recent recommendations from the Education Review Office (ERO) suggest that early childhood educators "encourage and increase the genuine involvement of children, parents, whānau, and other educators in assessment of children's learning and development" (Education Review Office, 2008, p.2). When children have the opportunity to make decisions about what should be included in their assessment, they are more likely to view themselves as "competent and experts" (Education Review Office, 2008, p.30).

ERO also defined "very good practice", in assessment, as teachers allowing children to have a voice in their assessment (Education Review Office, 2008, p.30). One of the ways ERO identified educators could involve children in the assessment process was through the use of ICT. "Children were learning how to use ICT tools to support their learning and make it visible … there were opportunities for children to become the educators"

(Education Review Office, 2008, p.30). Siraj-Blatchford & Whitebread (2003) hold similar views stating that "technology empowers children by granting them a voice they never had before" (p. 23). Furthermore, ERO recognise quality practice through "Educators who assess well, embrace the concept of "ako" – that the child and the educator are in a learning journey together – and that teachers are also learners" (Education Review Office, 2008, p.27). Publications within Aotearoa New Zealand such as *Kei tua o te pae* and *Te Whāriki* advocate for the voice of the children to be included in assessment as a way of developing confident and competent learners and communicators (Ministry of Education, 1996; Ministry of Education, 2004). Further to this children should be able to set, and reflect on, their own goals as a way of being involved in their own assessment (Ministry of Education, 1996).

How ICT creates active participants.

The use of digital cameras and laptop computers has been identified as a way to provide opportunities for children to have an input into their assessment as it develops (Boardman, 2007; Ministry of Education, 2008). An investigation into the use of digital cameras and voice recorders to document children's learning showed that children can use this medium to become active participants in the assessment for learning process (Boardman, 2007). This is corroborated by Rameka (2007) who asserts that the learner, who is an active participant in the assessment for learning process, provides a valid contribution to their assessment which can contribute to the depth and complexity of the stories being documented. Other ways that children can become active participants in their learning is through creating their own resources such as digital story books (Colbert, 2006; Walters, 2006).

Another case study carried out in Finland about the development of assessment portfolios for children supports this view by suggesting children develop strong self esteem and self knowledge when they have a sense of 'ownership' for their assessment (Kankaanrantra, 1996). However, recent research carried out within Aotearoa New Zealand, identifies that only a small proportion of children (29%) make decisions about what goes into their portfolios (Mitchell, 2008). This suggests that although there is evidence to support the benefits of including children in their assessment for learning, it is still a journey educators are on rather than a destination they have reached.

For children to acquire the most significant benefits from participating in assessment for learning there should be a strong partnership between families/whānau and the early childhood education provider. This is discussed in the next section.

How ICT can strengthen partnerships in the learning community.

The building of strong, collaborative relationships between stakeholders provides a catalyst for children to make a valued contribution to society. Genuine collaboration between the education context and home not only improves children's achievement, but the benefits can continue into adulthood especially when the partnership begins in early childhood education (Biddulph et al., 2003; Grant, 2009; Keyes, 2002; Ministry of Education, 2009b; Rameka, 2007). *Te Whāriki* supports this by stating "families should be a part of the assessment and evaluation of the curriculum as well as learning and development" (Ministry of Education, 1996, p.30). *Kei tua o te pae* also reinforces this message by stating:-

> The best teachers foster a sense of partnership between themselves and their students. They also build partnerships with parents to maximize the extent to which students' learning is guided and supported consistently by the students, teachers, parents and peers. True partnership, based on trust, respect and high-quality communication can create a very powerful learning synergy (Ministry of Education, 2004, Book one, p.14).

It becomes evident from the literature that when families/whānau are involved in children's learning and assessment for learning, they are conveying to children the message that their learning is valued (Boyd, 2008; Carr, 2001; Katz & Chard, 1996; Rameka, 2007). When discussing the assessment that takes place for Māori children in Aotearoa New Zealand, Rameka (2007) also maintains "assessment provides a context for the development of trust and respect and enhances relationships between teachers, whānau, and children" (Rameka, 2007, p.6).

Effective partnerships between teachers and families/whānau are not without complications. They are influenced by factors such as values, beliefs, culture and societal factors for both parties. Today's teaching environment is far more diverse than in the past which provides a challenge for teachers to meet the communication needs of the families/whānau (Keyes, 2002). However ICT provides a tool which teachers can use to make valued learning more visible, accessible and valuable to families (Boardman, 2007; Colbert, 2006; Hong & Trepanier-Street, 2004; Katz & Chard, 1996; Kristovich et al., 1998; Lee, et al., 2002). It is also through ICT that parents may be able to access evidence of children's learning at times more suitable to them, especially if children's assessment for

learning is placed on a webpage (Good, 2005; Kristovich et al., 1998) or utilises an internet based learning environment (Pelletier et al., 2006).

Boardman's (2007) study found that ICT tools such as digital cameras and computers "can be seen as possessing the potential to make learning outcomes more evident for parents and learners" (Boardman, 2007, p.65). Conversely Grant (2009) cautions that it can be difficult to ascertain exactly what influence ICT has on deepening the parent/school partnership however does concede that accessing information digitally can provide the impetus to begin conversations and create links between two different contexts. Keyes (2002), in her study of what promoted effective parent/teacher partnerships, found that it was a highly complex phenomena that included variables such as communication skills, culture, experience, values, and societal forces. Another complexity that has been identified was the suggestion that it is the role of the teachers to help children and their families/whānau see the benefits in utilising the technology available (Grant, 2009). This however is highly dependent upon the values and beliefs of the teachers.

In Aotearoa New Zealand, the research undertaken around assessment and documentation has highlighted the possibilities for the relationships between children, families/whānau and teachers to be strengthened and to reflect the complexity of children's learning (Carr et al., 2003). This occurs when the assessment process involves teachers and family/whānau members who are "inspired and energised" (Carr et al., 2003, p.192) by telling a story especially when that story provides an opportunity to demonstrate change or deeper learning (Carr et al., 2003). The strengthening of partnerships between teachers and families/whānau was evident in the way Meadowood Community Crèche used a private

internet blog site to share the learning and development of children over a period of time. Teachers and parents saw it as a "great information sharing tool" (Ministry of Education, 2009b, p.4).

In summary, this section has highlighted how ICT can provide opportunities for families/whānau and the greater learning community to have greater access, and therefore understanding, of children's learning, interests and strengths (Ministry of Education, 2008). ICT can be used as a medium to create strong partnerships and collaboration between the educational context and families/whānau resulting in better educational outcomes for children. Using ICT to involve children and their families/whānau provides opportunities for children to view themselves as competent and confident learners whose knowledge and learning is valued. Keyes (2002) sums it up well by stating that ICT can provide a way of "adapting communication to meet the diverse needs of parents" (p.184).

Weaving the Benefits Together: The Conclusion

The literature and research discussed suggests that ICT has an influence on the lives of children, their families/whānau and their teachers. The guiding documents of the early childhood sector support the integration of ICT into children's learning and assessment in a meaningful way (Ministry of Education, 1996; Ministry of Education, 2005; Ministry of Education, 2009a). Studies consistently identify that children are more involved in assessment for learning when given opportunities through ICT (Bolstad, 2004; Education Review Office, 2008; Hong & Trepanier-Street, 2004; Lee et al., 2002; Mitchell, 2008) and that this enables them to become more competent and confident learners (Ministry of Education, 1996; Ministry of Education, 2004). ICT can promote the development of

shared understandings (Boardman, 2007; Chung & Walsh, 2006; Hong & Trepanier-Street, 2004; Pelletier et al., 2006) and reflects the social and cultural context of Aotearoa New Zealand. Within this culture are the underlying theories that influence early childhood education (Ministry of Education, 1996) and the ways in which they advocate for the inclusion of ICT (Ministry of Education, 2005; Ministry of Education, 2009a).

The literature discussed clearly identifies the benefits of using ICT in the early childhood sector as well as acknowledging that ICT is not supported by all in the early childhood sector. ICT has the most benefits when used in a meaningful way that ensures it is integrated across the curriculum. ICT is useful to support teachers in writing learning stories about children that include multiple perspectives from the child, the family/whānau and the teachers. A very compelling reason for utilising ICT in early childhood is the increase in access to information about children's learning by families/whānau and the wider community. This helps create and support strong educational partnerships and better outcomes for children. ICT can be a tool for implementing sociocultural practices such as assessment for learning which links strongly to the principles of early childhood in Aotearoa New Zealand (Ministry of Education, 1996). Educators are cautioned however to be reflective and critical in their practice when integrating ICT into the early childhood context. Furthermore, it is mindful to remember that the implementation of ICT into the learning programme rests mainly with the teachers. The success of this is determined by the knowledge, skills, values and beliefs of the teachers.

Based on the literature reviewed, and my desire to investigate the use of ICT in my own workplace, I set out to study the involvement of children and their family/whānau in the

assessment for learning process and to address the research question of: How the use of ICT could support the involvement of children, their families/whānau and their teachers in assessment for learning? And the sub-questions:-

How are children and their families/whānau involved in the assessment process?

How do teachers involve children and their families/whānau in the children's assessment for learning?

What do children and their families/whānau value in the assessment for learning process?

How do children and their families/whānau access information?

Chapter three describes the methodology I used as I explored these questions.

Chapter Three: Methodology

What's Behind the Webpage?: Introduction

This chapter begins by describing the theoretical framework for the study and my position as a researcher in it. I then describe the setting and the participants before documenting the methods and procedures that were used to gather the data. This chapter concludes by discussing the ways in which a quality research design was ensured, how the data was analysed and the findings produced.

Theoretical Framework

As I was undertaking this study to reflect the experiences and understandings of the participants in a specific context a qualitative approach to research was appropriate. Qualitative research focuses on gathering data that will generate some understanding of a social phenomenon. Merriam (1998) believes that qualitative research is based on the view that "reality is constructed by individuals interacting within their social worlds" (Merriam, 1998, p.6). This qualitative research reflects an interpretivist paradigm of how the world is viewed. Interpretivists believe each person makes sense of the world by negotiating shared social and cultural understandings (Mac Naughton et al., 2001). Within the qualitative frame of research sits several other defining paradigms or views of the world and how knowledge is attained (Hatch, 2007). I have utilised a constructivist paradigm to frame this study as I wanted "to uncover multiple realities as they are experienced by individual participants" (Hatch, 2007, p.225). Constructionism or social constructionism is derived from the constructivist epistemology or theory of knowledge and has become influential in early childhood education (Edwards, 2005).

As a researcher in the early childhood field I believe it is important to maintain a connection to the theories that underpin *Te Whāriki* (Ministry of Education, 1996), the Aotearoa New Zealand early childhood curriculum, and my practices as a teacher. *Te Whāriki* is based, in part, on a view of the world informed by social constructionism (Ministry of Education, 1996). Social constructionism can be defined in simplistic terms as being concerned with the interactions and relationships that occur between people. It sees the importance in how people construct knowledge together (Burr, 1995). Social constructionism also suggests that the ideas and knowledge of each child (or person) is constructed by the views of their society including the culture, discourses, institutions, power networks and history (Scott & Morrison, 2006).

Te Whāriki reflects the social constructionism framework through emphasising the "critical role of socially and culturally mediated learning" (Ministry of Education, 1996, p.9). Sociocultural theories of how children learn and develop within early childhood forms a basis for the type of teaching and learning advocated for in *Te Whāriki* (Ministry of Education, 1996). Within this frame "both teachers and children are understood to be engaged in a process of actively constructing knowledge, through their interaction with time, space, objects and people" (Nuttall, 2003, p.167).

In addition, the social and cultural environment that I am part of as a teacher contains the tools and artefacts of our time. I am referring specifically, in this instance, to ICT. As identified by Rogoff (2003) children are not only influenced by the context they are part of, they also exert some agency to influence the relationships and activities within their contexts "These contexts involve a complex web of interactions which have social,

cultural, political and ethical dimensions" (Fleer et al., 2006, p. 46). The relationships and interactions each child has with ICT will influence the knowledge that they construct about ICT (Kirkpatrick, 2008) now and in the future.

Researcher Position

Qualitative research involves a certain degree of reflexivity. Reflexivity in the context of this study is concerned with making explicit the position of the researcher within the study (Mac Naughton, Rolfe & Siraj-Blatchford, 2001). Within this research project I was situated both inside and outside the research context. As a teacher in the kindergarten used in the case study I was inextricably involved. My actions as a teacher will no doubt have had an impact on the data gathered. This is especially important to acknowledge as I was the teacher who implemented the set up of the webpage. Although involved in the study as both a researcher and practitioner I believe I was able to distance myself when writing the data analysis and present only the facts that were evident from the findings. This was definitely challenging at times and required me to only interpret that which I was reading and forego other information that could have changed the data analysis.

There were times during the study when I needed to be aware of how my actions in the kindergarten could influence the participant's actions. Being a highly reflective practitioner who regularly tries new things with children and for the teaching team, it was challenging to become instead a silent observer. During the study I relinquished the role of setting up the webpage so that the other teachers could drive the acceptance (or not) of the webpage. This concern over my role reflects the ethical stance that is necessary in a case study (Merriam, 1998). I believe it is relevant to acknowledge that my gathering and

interpretation of the data was influenced by my theoretical values and beliefs. I viewed the study through a sociocultural lens and therefore was interested in the relationships, construction of knowledge, actions and views of the participants.

I found it a little disconcerting to engage in research that appeared at first to have no boundaries. I learnt to see the context and fence it off so that the relevant phenomenon could be studied and reported on. I was also initially not sure how the data gathered would be presented so that it made sense to future readers when it was reflecting such a small slice of life (Merriam, 1998). I meticulously sifted through data, and culled out interesting but unnecessary information, to find the best story (Stake, 1995). Although initially challenging, I believe my early childhood teaching practices of writing narratives and telling stories provided me with the tools necessary to complete this task.

Setting and Context

The study was undertaken in Green Road kindergarten (pseudonym) which was located in a middle to high socioeconomic area with children who came from a variety of ethnic backgrounds. The kindergarten had four teachers, one of whom was the head teacher. I (the researcher) was one of the teachers. The teachers were all qualified to teach in the kindergarten setting and had been teaching for between one and 25 years. The study was carried out in the morning session where forty children attended the kindergarten five mornings per week from 8.15 – 12.30. The kindergarten was well established and well resourced. Each teacher had their own laptop and there was a laptop used specifically for researching information, accessing music and connected to a 42" LCD screen. There was a personal computer (PC) for the office worker; a PC for viewing slide shows of the

children's learning; and a PC loaded with educational software that was specifically used by the children. All computers (except the children's one) were networked and connected to the internet via wireless modem.

The teachers were at different places in their ICT journey. Their knowledge and abilities ranged from basic word processing to being highly knowledgeable about various aspects of ICT and how it could be incorporated into the learning environment. The desire to increase the use of ICT was raised during several staff meetings and became one of the many reasons for change.

A series of events provided further impetus for change. Initially, one teacher carried out a survey of some parents and the data indicated that more could be done to communicate with the families/whānau electronically. Shortly after this the kindergarten was visited by the Education Review Office (ERO) who suggested an area of improvement for Green Road Kindergarten could be to include children and their families/whānau in assessment for learning practices. In addition, I had undertaken some professional development relating to assessment for learning and believed that we could become more effective in our sociocultural assessment and communication practices by utilising the ICT available to us. Finally staff discussions led to the idea of developing a webpage where children's learning could be more visible and accessible. The teachers then carried out a survey of the parents the results of which indicated a desire to see a webpage implemented.

We took many months of working out what would go onto the webpage and employing someone to develop this for us. Once up and running we then had to develop a system of

utilising the webpage. We did this by adding picture galleries, group and individual assessment for learning stories, and a slide show using the children's words to write their stories. We added a blog to the webpage in the hope that families/whānau would use this to communicate with their children and possibly the teachers.

Participants

To study how the webpage could support the involvement of children, their families/whānau and their teachers in assessment for learning I decided to focus my study on three children, their families/whānau and the other three teachers in the kindergarten. I established the following criteria for the selection of the child and family participants: the children needed to be enrolled to attend the morning session five days a week; the children needed to turn five after March 2010; and the children were those that belonged to my colleagues' key-worker lists (these are lists that identify which children a teacher is primarily responsible for). This created a pool of sixteen potential child participants. Each key-worker/teacher then randomly selected a child from the list and gave me his/her name. Three children and families/whānau were invited to participate in the study. The teachers were also invited to participate.

Once the child and family participants were selected I approached the parents/caregivers to inform them of the purpose of the study and establish their willingness to participate. It was also necessary at this stage to establish that children and their families/whānau would have computers and internet access in their homes.

The final participant group involved three children, their families/whānau and three teachers. Their pseudonyms are as follows:

Family one: Ngaiti (child participant); Naomi (mother); Jamie (sibling)

Family Two: Tui (child participant); Kiri (mother); Jack (sibling); Karl (father)

Family three: Roman (child participant); Jade (mother); Tony (father); Anna (sibling)

Teachers: Mere; Aroha; Hine.

Obtaining Consents and Ethical Considerations

Ethical consent was sought and obtained from the Human Ethics Committee of the university overseeing the project. Following this, informed consent was sought from the Management of the Kindergarten Association (appendix A). Informed consent was then sought from the participants (appendix A). All participants received an information sheet (appendix A) stating the purpose of the study, the proposed length of the study, the expectations of the participants, and an outline of the risks. The participants were also informed that they could withdraw from the study at any time and their involvement was voluntary.

To ensure respect and the comfort of the participants the observation and interview times were negotiated individually. The privacy and protection of the participants was of utmost importance during the study (Mac Naughton et al., 2001). To maintain anonymity the kindergarten and all the participants were given pseudonyms. The raw data was only available to be viewed by the participants, myself and my supervisors if necessary. The

raw data was stored in my own home in a filing box that only I have access to. The transcripts of data were also stored on my computer which is password protected.

There was an ethical consideration during this study about observing children and their understanding of the process. As concurrent with early childhood pedagogy in Aotearoa New Zealand, I viewed the children as competent and confident, therefore able to be a reliable source of information (Brooker, 2001; Leeson, 2007). I reflected regularly during the observation and interview processes to consider the appropriateness of my questions and what I was choosing to observe (Leeson, 2007). I also believe I was aware of the possibility that there could be a power imbalance in adults observing children and maintained a professional approach by only documenting that which was relevant to the study (Merriam, 1998).

Consideration was given to the extent in which the case study was highly subjective (Merriam, 1998). I kept this in mind throughout the study and endeavoured to record accurate data. I regularly reflected on my position as a "guest" (Stake, 1994, p.244) in the private lives of the children, their families/whānau and the teachers. I believe I carried out the data collection in a professional and respectful way and only used information that was relevant to the study.

Research Method

To study how the use of ICT could support the involvement of children, their families/whānau and their teachers in assessment for learning I used the case study method.

It is the uniqueness of the phenomena and context being studied that can be seen as a strength of this method. This is most true when a full and detailed account of the phenomenon being studied is documented (Cohen, Manion & Morrison, 2000; Stake, 1995). Stake (1995) claims a case study is "a specific, a complex, functioning thing" (p.2) which provides multiple realities (Stake, 1995). Although there are varying opinions on whether the case study is a time effective method (Cohen et al., 2000; Merriam, 1998; Yin, 1994) in this study the case study method offered a way of gathering as much data as possible, in a short amount of time, to create a deep and descriptive picture of what occurred.

The case study method is a popular choice for educational research. It allows the researcher to gather data about a specific unit which may be a child, a class, a school, an early childhood centre or a community. This case study sits within the boundaries of a specific context and time frame and reflects a small "slice of life" (Merriam, 1998, p.41). It is a snap shot in time (Carr, 2001) much the same as an assessment observation or learning story that is carried out in an early childhood setting. The case study method that I used can be described as *story-telling* (Bassey, 1999, as cited in Scott & Morrison, 2006), *descriptive* (Merriam, 1998) and *intrinsic* (Stake, 1995). Story-telling and descriptive are both self explanatory terms. However, to be intrinsic, a case study must be about a specific event or phenomenon occurring (within a real life context) that is of interest to the researcher (Stake, 1995).

The case study can be used by individual teachers and institutions as an impetus for change (Cohen et al., 2000). Similarly, when talking about the place of a case study in research,

Yin (1994) suggests that a valid use of a case study is to "describe an intervention and the real-life context in which it occurred" (Yin, 1994, p.15). This study fits these criteria as it tells the story of a specific change/intervention that was of interest to me and how that could impact on my teaching as well as the learning community I was part of. The intervention described in the case study was the introduction of ICT (a webpage) and how that could support children, their families/whānau and their teachers in assessment for learning.

Data Collection Tools

The case study method allows for some flexibility in choosing data collection tools (Davidson & Tolich, 2003; Merriam, 1998) which was an influencing factor in my decision to utilise this study method. This study used a variety of data collection tools such as: observations (narrative description and event recording); questionnaires; semi-structured interviews; and a reflective/field diary. In this section of the chapter I will briefly describe the tools I employed and how they are relevant to this study.

Observation.

Observation is a common tool employed in the case study method (Cohen et al., 2000). In this study I used two observation methods. The narrative observation method was used to write descriptive contextual observations (Yin, 1994) and an event recording sheet was used to record specific occurrences of an event (Bentzen, 2000).

Narrative descriptions are a formal observation that require predetermined criteria and record a detailed account of behaviours and contexts (Bentzen, 2000). It provides a

vicarious experience for the reader that transports them into the context being studied. It is a strength of this observation method that the narratives contain "rigorous detail" (Bentzen, 2000, p.91). For observations to contain useful detail the observer must have excellent literacy skills as well as the ability to be as discrete and unobtrusive as possible. To keep the observations rich and descriptive, an interpretation was written as soon as possible after the observation was completed (Bentzen, 2000; Stake, 1995) in a field diary.

I also used the narrative observation method as it parallels the methods used by teachers to gather data about children in the context in which the study was carried out. The narrative observations were used to gather information about the interactions between the children and their families/whānau and between the children and the teachers when involved in assessment for learning.

The narrative method of collecting data is one of the best means to gather data from young children (Scott & Morrison, 2006). It has a defining characteristic of being holistic (Carr, 2001, Stake, 1995) which is an underlying principle of the early childhood curriculum (Ministry of Education, 1996) and therefore important for practice. Scott & Morrison (2006) point out that quantitative researchers see observer bias, where the values, beliefs and inclinations of the researcher influence what is seen and recorded, as a limitation. However, Stake (1995) argues that it is the experiential nature of qualitative research that is a point of difference. Acknowledgement of my own influences over what was observed, my theoretical stance and personal position adds to the depth, complexity and reliability of the study.

Event recordings were used to record an event using a high level of selectivity (Bentzen, 2000). It was proposed that each time a child accessed their portfolio or the webpage whilst attending the kindergarten session this event was recorded. The event recording was used in the first part of the study however the children were not involved in the setup (phase B) and did not access the webpage (phase C) during their time at kindergarten so there were no events to record during this time. As this method provided data for only one phase of the study it did not offer a means of identifying change. For this reason the data was not used in the final report.

Questionnaire.

I used a semi-structured open-ended questionnaire (appendix B) to ask families/whānau and teachers their views on assessment for learning. A semi-structured, open-ended questionnaire, in a case study, is a suitable method of gathering data specific to the participants and the context (Cohen et al., 2000). A questionnaire was used in this case study, not as a standalone tool, but rather as a way of adding depth to the data of this small scale study (Scott & Morrison, 2006). The main strength of using the open-ended questionnaire was the way that it obtained descriptive responses from a small number of participants. Cohen et al., (2000) state: "an open-ended questionnaire can catch the authenticity, richness, depth of response, honesty and candor which are the hallmarks of qualitative data" (p.255).

A limitation of the questionnaire was that it presumed the participant understood "the formulated questions exactly as intended" (Alvesson, 2002, p.64). As a means of developing the skills necessary to ask questions that elicited relevant answers to my

questions I gave copies of my draft questionnaire to peers for their feedback. Peer-review is an appropriate way of increasing the usefulness, validity and reliability of the questionnaire (Cohen et al., 2000). My peers provided feedback on the suitability of the questions and the clarity of what was being asked. However even the most experienced researcher cannot predict how a participant will respond or interpret a question (Cohen et al., 2000) and I did have one instance where a question was misinterpreted by a participant. This data was not used as part of the findings.

I also chose to use a questionnaire as it allowed the families/whānau and the teachers to complete it at a time convenient to them. The data gathered from the questionnaires provided baseline information that was further explored in the interviews that followed.

Semi-structured interview.

I used semi-structured interviews to explore in more depth the views of the families/whānau and teachers (appendix B). Interviews provided a way for the "feelings, thoughts, values, experiences and observations" (Alvesson, 2002, p.64) of the participants to be documented in detail. A semi-structured interview provided some guidelines to keep the interviews on track as well as some flexibility to explore new data (Cohen et al., 2000). I used a semi-structured interview to talk with the families/whānau and the teachers about their involvement with the webpage and how that supported them in the assessment for learning process. This enabled the unique experiences and stories of the participants to be revealed through in-depth discussions (Stake, 1995).

In this case study, where multiple perspectives were sought, the interview method was one of the best tools available (Stake, 1995, Yin, 1994). It was a strength of the interview method that it could be used to clarify information gathered by the observations and questionnaires (Cohen et al., 2000). The ability to ask specific questions, prompt respondents or remind them of past events or statements was also a strength of the interview method (Mac Naughton et al., 2001).

Although interviews can be unsystematic, provide varying degrees of data, and may be difficult to analyse and interpret (Cohen et al., 2000), in this study the interviews were semi-structured and used a predetermined set of questions (appendix B) which gave some control over the gathering of relevant data. It took a lot of skill to ask the right questions, listen attentively and be able to guide conversations in the appropriate direction (Edwards, 2001). A further limitation is that the interview can be biased due to the structure of the guiding questions and the recall and reporting of the data (Yin, 1994). This was addressed by taking care when transcribing interviews and writing supporting field notes to make sure I reflected the subtleties, context and innuendos that could be lost in the audio tapes (Stake, 1995). The use of the tape recorder enabled me to listen without having to write at the same time, this way I could add richness to the data by observing non verbal clues such as facial expression or body language.

In consideration of the comfort level of both the families/whānau and the teachers the interviews were carried out in contexts familiar to the participants. For example, the families/whānau were interviewed in their own homes and the teachers at the kindergarten as a group. I interviewed the teachers as a group as this reflected the 'team' approach to

teaching that occurred at Green Road Kindergarten and to save time for both the participants and myself (Cohen et al., 2000). One disadvantage of interviewing as a group was that it permitted one speaker to dominate the conversation (Cohen et al., 2000). I addressed this by asking each teacher individually if they had further comments to add to the discussion.

Diary.

The diary, sometimes called field notes or a reflective diary provided contextual information, reflective notes and suggestions for further data gathering (Cohen et al., 2000; Scott & Morrison, 2006). There were no limitations or restrictions in keeping a diary other than to acknowledge that it was highly subjective and was used as a tool for reflection and provocation (Scott & Morrison, 2006).

I kept a diary to document happenings that provided a deeper contextual understanding of the data gathered. For example, during the setup phase I wrote about how children were not being engaged in the process and what that would mean for the next phase of the study. I reflected on how the event sampling that was proposed was not used and concluded that the lack of event occurring was a finding in itself. I also wrote reflective notes after completing interviews and added contextual data that I thought I might forget when I came to transcribe the data.

The diary enabled me to make notes on the way interviews progressed (or didn't), and to reflect on how I could make changes to the way the research was being carried out. For

example the data gathered during phase B provoked a change in the questions that were asked of the teachers during the semi-structured interview carried out in phase C.

Research Design and Procedures

The data was gathered in three phases from November 2009 to April 2010. As the kindergarten was closed for four weeks over the summer holidays there was a longer time lapse between phase A and phase B than anticipated which resulted in a shorter time between phase B and phase C. Table 1 shows the timeframe, proposed tools and purpose of each data collection phase.

Table 1. *Proposed schedule of data collection phases, tools and purpose*

	Narrative Observations	**Questionnaires**	**Semi-structured Interview**	**Event Recording**
	1 of each child in each phase	1 per family 1 for each of the teachers	1 per family 1 for teachers as a group	for each phase
PHASE A November 2009	Of children and teachers engaged in assessment for learning.	For teachers and families/whānau about values, beliefs and expectations of assessment for learning.		To record when a child accessed their portfolio
PHASE B January/ February 2010	Of children and their families/whānau engaging with the webpage and assessment for learning.		With teachers and families/whānau about their values and beliefs related to assessment for learning and the webpage.	To record when children were involved in the setup of the webpage – proposed not carried out
PHASE C March/April 2010	Of children and their families/whānau engaging with the webpage and assessment for learning.		With teachers and families/whānau about their values and beliefs related to assessment for learning and the webpage.	To record when children were accessing the webpage at kindergarten – proposed not carried out

In phase A I used methods of narrative observations, event recordings, and questionnaires to gather data. Phase B and C data was obtained from narrative observations, interviews. A diary was in use throughout and provided contextual and reflective information.

Set criteria were developed for the narrative observations carried out at the kindergarten in phase A. They were as follows:

There were undertaken in the morning session

Selected children were involved in looking at their portfolio

Phase B was carried out during the set up of the webpage which was designed to support children, their families/whānau and teachers in assessment for learning. Phase C was carried out after the webpage had been in use for a short time to reflect any changes in the way children, their families/whānau and teachers were involved in assessment for learning.

Set criteria were developed for the narrative observations carried out at the family/whānau homes in phase B and phase C. They were as follows:

They were carried out in the family/whānau home

Selected children were involved in accessing the webpage

The observations and interviews were transcribed and then returned to the adult participants for verification. After any amendments they were returned and verified again. The adult participants signed the transcripts to establish their verification.

Quality Research Design

This section discusses the research design chosen for this study. As the case study method is qualitative it is the trustworthiness of the research which reflects the quality or rigor of the study (Cohen et al., 2000; Coll & Chapman, 2000). Trustworthiness is a term developed to sit within the qualitative paradigm and provides some guidance for producing research which other writers and readers in the field will consider worthy. In qualitative research evidence of the trustworthiness of the study can be achieved by providing the reader with enough detail to show that the writer's conclusions make sense. Attention was given to how the research study developed, the tools that were employed to gather data, the analysis of the data and how the findings were presented (Merriam, 1998). Trustworthiness was also established through the explicit acknowledgement of the theoretical paradigm and theories that framed the study.

Lincoln & Guba (2007) developed four aspects of trustworthiness which can also be used to measure trustworthiness in qualitative research. The criteria of trustworthiness includes: credibility; transferability; dependability; and confirmability (Cohen et al., 2000; Denzin & Lincoln, 2003; Guba, 1981; Lincoln & Guba, 2007). Trustworthiness was addressed in this study through a variety of measures such as credibility and transferability.

Credibility can be likened to the aspects of truth that are evident in the study (Guba, 1981). The study should provide evidence of the claims being made. In other words, the study must be plausible to have credibility (Cohen et al., 2000). One of the ways in which this study provided credibility was through member checking or respondent validation (Cohen et al, 2000; Denzin & Lincoln, 2003; Stake, 1995). The data gathered during the

observations and interviews was transcribed and returned to the participants to read through so they could add details or corrections. It was then signed to indicate it was a true and correct interpretation of the events.

Another way of ensuring credibility was through triangulation. As highlighted by Denzin & Lincoln (2003), triangulation offers guidelines to follow which encourages researchers to strive for depth and richness in their research.

> "The combination of multiple methods, empirical materials, perspectives and observers in a single study is best understood, then, as a strategy that adds rigor, breadth, and depth to any investigation"
> (Denzin & Lincoln, 2003, p.188)

This was achieved in this study by using more than one method to gather data (Cohen et al., 2000; Stake, 1995). For example observations and interviews were used to gather data about the same experiences from the same context using different methods. A further way of adding credibility was to look not just for evidence of similarities but also to identify differences, or contradictions occurring in the data (Denzin & Lincoln, 2003). This was evident in the views that were discovered about the value of using of computers with young children from the different families/whānau and the teachers.

Transferability is the way in which the study could be replicated in another context (Coll & Chapman, 2000; Merriam, 1998). What is looked for, as a way of demonstrating trustworthiness, is the documentation of precisely how the case study was undertaken. This provides other researchers with the information necessary to use the same tools and

methods to carry out another case study of the same phenomena but in a different context (Yin, 1994). This was done by the thorough documentation of the methodologies and methods that were utilised in the design and conduct of the research.

Data Analysis

This section discusses how the data from the observations, questionnaires, and semi-structured interviews were analysed and the findings produced.

The data was analysed during and after each data collection phase and drawn together at the end of the study to present a rich, descriptive story. I began the process with a large amount of data which funneled down into specific themes and patterns (Cohen et al., 2000). I used basic content analysis (Cohen et al., 2000; Mac Naughton et al., 2001) to look for reoccurring themes or patterning (Stake, 1995; Yin, 1994).

Phase A provided baseline data relating to how children and their families/whānau were involved in the assessment for learning process. The data gathered for phase A was obtained through the following methods:

1. Three narrative observations - one of each child and their teacher accessing their portfolios in the kindergarten.

2. Three families/whānau completed questionnaires on ICT and assessment for learning.

3. Three teachers completed questionnaires on ICT and assessment for learning.

4. Event recording.

During phase A, the data was initially analysed by reading through the questionnaire and responses several times. I then made several photocopies of the responses which I cut up and matched to the questions so I could view all responses to the questions at once. As I was analysing only a small amount of information this process allowed me to easily see any themes, similarities or contradictions in the data.

I developed a coding system after the responses to the questionnaire were received. This is called a post-coding method and is appropriate to use for this open-ended semi-structured questionnaire (Cohen et al., 2000). As there was only a small number of questionnaires (n =6) being analysed this seemed to be a suitable data analysis method to use. While coding the data from the questionnaire I found that some themes emerged that linked to the original research question, sub-questions, ICT, and the assessment for learning processes. The themes that emerged were:

Being involved

Decision making

Values in ICT and assessment for learning

Making learning visible

Accessing information

Using these five categories gave me some boundaries to work within so that I did not lose sight of the original research questions and I was able to keep the links between each phase relevant and strong.

Phase B data was gathered to provide information about assessment for learning processes during the setup of the webpage. The data gathered for phase B was obtained through the following methods:

1. Three narrative observations - one of each child and their family/whānau accessing the webpage in their homes.

2. Three audio taped semi-structured interviews - one with each of the three families.

3. One audio taped semi-structured group interview with the teaching team.

The three family/whānau interviews and the group teachers interview were all transcribed and validated before being analysed. Data gathered during phase B was analysed again using content analysis. This time however I used the categories that had emerged from phase A to guide the analysis of the phase B transcripts and observations. I read the observations and the transcripts until I was familiar with the text and then coded them according to the five themes that emerged after the analysis of phase A data. Once I had coded the transcripts and observations I went through them again looking for new themes or anomalies.

Phase C data was gathered to provide information about assessment for learning after the webpage had been in use for several months. During this phase I replicated the data gathering approach used in phase B. The data analysis also followed the same procedure as the phase B.

The event recordings were proposed to gather data on the frequency of children being involved in the setup or accessing of the webpage. The absence of these events occurring in phase B and C became the data. The field diary was not analysed as data, rather, it was used to add retrospective depth and descriptions to the interviews and narrative observations.

Summary

This chapter has provided an overview of the research processes used to carry out this study. It discussed the qualitative framework and research paradigms that provided a structure for the study. I made explicit my position as a researcher and kept the study embedded in the current philosophies of teaching and learning in early childhood. This was followed by an overview of the setting, context and participants involved in this study. The chapter reviewed the reasons for using a qualitative case study method and emphasised the aptness of using this method to tell the unique and complex stories of the participants. The methods used to gather data, their strengths, limitations, and the reasons they were chosen for this study were also examined. The research design was explained along with a schedule of data collection tools and the ethical considerations of the study. The ways in which I ensured the study was trustworthy and credible was also explored. Finally this chapter described the ways in which the gathered data was themed, coded and analysed. The following chapter four presents the findings of the study.

Chapter Four: Findings

Connecting to the Webpage: Introduction

This chapter presents the findings that emerged from the data analysis.

The information gathered addresses the main research question of how the use of ICT (a webpage) could support the involvement of children, their families/whānau and their teachers in assessment for learning and the sub-questions:

1. How are children and their families/whānau involved in the assessment for learning process?
2. How do teachers involve children and their families/whānau in the children's assessment for learning?
3. What do children and their families/whānau value in the assessment for learning process?
4. How do children and their families/whānau access information?

There were five themes that emerged from analysing the data:

Being involved

Decision making

Values in assessment and ICT

Making learning visible

Accessing information.

These themes are used to frame this chapter and the stories of the participants. The findings of each theme are discussed throughout the chapter and are presented to reflect the perspectives of each of the families/whānau and the teachers. It will become evident that, like most stories in early childhood, themes are often intertwined and the findings relative

to more than one participant. I chose some data because it reflected participant's views, feelings or reactions. Other data was chosen because it highlighted similarities or differences between participants or groups.

Being Involved

How are children and their families/whānau involved in the assessment for learning process?

In the assessment for learning process 'being involved' is an indicator of children's well-being and belonging (Carr, 2001). Being involved suggests some engagement with an activity or experience occurring and therefore the acquisition of some knowledge or learning.

Children and families/whānau involvement was evident in a range of ways throughout all phases. For example by including multiple voices in observations and learning stories; verbal interactions; goal setting; revisiting experiences and making connections between home and the learning environment.

> *Children often seem to participate in the creation of learning stories, adding their own perspective.*
>
> *(Phase A, family/whānau questionnaire 1)*

This phase A data suggests multiple views of the child and their learning are evident which added depth and complexity to the documentation of their learning. The families also identified through the questionnaire that they were involved through the goal setting process. This occurred either formally, through sheets in the portfolio, or informally

through verbal interactions. Two of the three families identified their involvement through providing evidence of children's learning that they gathered at home. This was then added to the child's portfolio and provided a link between the home and the education environment.

In phase B the findings suggest verbal interactions when looking at the webpage were one way of involving children and their families/whānau. This could be a parent and child or include other siblings present looking at the webpage. Foe example:

> *Naomi – Is that you?*
>
> *Ngaiti – Yes*
>
> *Naomi – It doesn't look like you. Who is that?*
>
> *Ngaiti – … (says child's name).*
>
> *Naomi – That looks like … (another child)*
>
> *Naomi – Can you read the rest Jamie?*
>
> *Jamie reads while Naomi clicks the mouse and Ngaiti watches.*
>
> *(Phase B, observation 1)*

The ability to take what occurred during the day in one environment and reconnect with this information through a new medium (the webpage); in a new and familiar context (at home); and with different relationships (parents; siblings or wider whānau) offers children the opportunity to build rich and complex understandings. All three families were observed involving their children in the assessment for learning process through questioning. For example when looking at the webpage they asked, 'who' 'what', and 'can you remember' type questions. They were therefore inviting the children to remember,

reflect and respond about the learning that had been documented on the webpage. They were actively contributing to the possibility of developing new shared understandings which is a sociocultural indicator in assessment for learning.

In phase C of the project, parents continued to discuss documented assessments from the webpage with the children. When observing the interactions between parents and children I noted that each family sat close together and parents asked questions to engage the recall of the children. The following vignette (short story) from the observation carried out at Roman's house, while he was looking at the webpage, portrays how through questioning Jade involves Roman in remembering:

> *Roman – what are they doing?*
>
> *Jade – what do you think they are doing?*
>
> *Roman explains that they have had a water fun day at kindergarten. This interests Roman's sister Anna who comes to have a look too.*
>
> *Jade – What are you looking at now?*
>
> *Roman – I am going down the waterslide and the yellow one is the wet slide.*
>
> *In my field notes I noted from Roman's body language, that he appeared interested. His eyes were on the screen, he was focused and smiling. When he saw his friends his voice got louder indicating his excitement and pleasure. (Phase C, observation 3)*

How do teachers involve children and their families/whānau in the children's assessment for learning?

The baseline data gathered from teachers identified several formal assessment processes that were provided to encourage the involvement of families/whānau. These included asking for written feedback in the children's portfolios; asking for the aspirations the family/whānau has for their child; and asking for a formal meeting after progress reports have been provided (Phase A, teacher questionnaire). Teachers involved children through:

> *Showing them photos of their learning and encourage them to express their ideas about the experience (Aroha);*
> *Often go back next day and ask questions (Hine);*
> *Specifically asking for their contribution and writing things down for them (Mere)*
> *(Phase A, teacher questionnaires)*

The data provided evidence of teachers using questions to involve children:

> *What do you think you did really well while making this? (Aroha) and*
> *Can you remember that? (Mere)*
> *(Phase A, observation 1 & 3)*

These questions highlight how teachers invited children to be involved in the assessment process by re-visiting photographs of their work or learning stories. One of the teachers, Mere, involved children in setting their own goals through daily interactions and self

initiated projects. The following vignette highlights how Mere involved Roman:

> *Mere and Roman were sitting on the couch looking at his portfolio. Mere tells Roman what goals he has set and shows him the page where it is documented to say he achieved that goal. "You are seven months older. You must be very proud of that. Do you have any more goals?" Mere asks "Making a tall tall big tower" replies Roman. "Shall I write that on my list to remind you?" Mere asks.*
>
> *(Phase A, observation 3)*

In summary the findings suggest children, their families/whānau and the teachers were involved in assessment for learning in all three phases in a variety of ways. The children were not observed during phase A looking at their portfolios with their families/whānau so it is difficult to assert that there were any changes in their involvement however, the webpage provided another medium that could be used by a greater community of learners.

Making Decisions

'Decision making' incorporates two principles of *Te Whāriki*, (Ministry of Education, 1996) empowerment/whakamana and family and community/whānau tangata. When children and families/whānau are included in the assessment process they are empowered through being consulted. Consultation can include children setting their own goals; children dictating stories or comments; children making decisions about what goes into their assessments; and families/whānau adding to or including their own stories (Ministry of Education, 2004). When children's perspectives are sought about their learning they are

intrinsically motivated rather than performance orientated (Carr, 2001). The inclusion of multiple voices also reflects a sociocultural approach to assessment for learning in which the stakeholders are all active participants (Carr, 2001; Fleer et al., 2006; Ministry of Education, 2004).

During phase A of this study it became apparent that power over decision making, about what was documented and how it was documented, rested mainly with the teachers. The families/whānau were asked to comment about 'who makes decisions about what goes into the children's portfolios?' The three families/whānau responded as follows:

> *Teachers and sometimes parents (Naomi).*
>
> *Teachers (Kiri).*
>
> *Teachers and children usually, occasional input from parents – this is rare (Jade).*
>
> *(Phase A, family/whānau questionnaire 1,2,3)*

This data highlights that teachers and parents were identified as having decision making input however there is no reference to children making decisions.

Each of the three teachers were also asked how decisions were made about what goes into each portfolio. The answers were varied however all the teachers identified that they make decisions. Their responses were:

> *Educator makes decisions either independently or in collaboration with children (Mere)*
>
> *(Phase A, teachers questionnaire 1)*

Each child has a key teacher who is in charge of setting up and maintaining their children's portfolios (Hine)

(Phase A, teachers questionnaire 3)

Sometimes children ask for it. Goals are set by parents or jointly by parents and teachers. If we have a special occasion teachers will put something in (Aroha)

(Phase A, teachers questionnaire 2)

We endeavour for children/families to take real ownership of their portfolios and to want to contribute to their own documentation (Mere)

(Phase A, teachers questionnaire 1)

This data indicates the teachers were aware they were making most of the decisions about what goes into the portfolios however each teacher aimed to involve either children or families/whānau to differing degrees. The responses also suggests the teachers have an aspiration at Green Road Kindergarten to provide sociocultural assessment for learning by involving children and their families/whānau in the decision making process.

The data from phase B indicates a slight change in who made decisions about assessment for learning and what was put on the webpage.

I haven't really noticed a difference in assessment for learning but children are asking more frequently to have photos taken but I don't think that is because of the website (Hine)

I have heard one child ask if they could put something on (the webpage) so they could look at home (Hine)

(Phase B, teacher group interview)

The request of children to have their photo taken is an indication they value what they have done and they would like it recorded somewhere (Clark, 2005; Good, 2005). Asking to put their work on the webpage also signifies they are deciding they want to make visible the learning that is important to them and that the webpage could be a place to do this. This data is an indication that ICT is supporting children in their assessment for learning.

During phase C of the study I had proposed to observe the children and the teachers engaging with the webpage at the kindergarten which I had hoped would provide more data relating to who made decisions about what was included. I decided to view the absence of the teachers and children engaging with the webpage as data that could be used in the study. I added questions into the phase C group interview (appendix B) with the teachers to explore this further. I recorded in my field diary that the teachers had begun uploading a 'slide show' onto the webpage once a week. The uploaded slide show was a compilation of the daily slide shows that were put onto a PC for the children and families/whānau to view at the end of each morning session. The decisions about what went on the slide show rested solely with the teachers. My data showed that in phase C the teachers were the main decision makers in this assessment for learning process. Identified reasons for this are discussed in the next section about values.

Values in Assessment for Learning and ICT

What do children and their families/whanau value in the assessment for learning process?

As I analysed the data from phase A some answers to the research sub-question *'what do children and their family's value in the assessment for learning process?'* began to emerge. The findings around this topic indicate that each family/whānau valued different aspects of assessment for learning. Being able to re-visit the portfolio during their time at kindergarten and at a later stage in life was one of the ways the assessment for learning was valued.

My six year old regularly reads back over his kindy portfolio

(Phase A, family/whānau questionnaire 1)

Further responses indicated other ways that each family/whānau valued the portfolios. For example:

Provides an opportunity for discussion (Jade)

Identifies strengths (Kiri)

Provides an insight into behaviour/activities not influenced by parent's presence (Jade)

Monitors child development – A yard stick (Naomi)

A memento of the time spent at kindergarten (Naomi)

(Phase A, family/whānau questionnaire 1,2,3)

Although the families/whānau valued different content, their responses suggest that they all valued the portfolio in its current form of a clear file displaying evidence for learning. I

also observed the children looking at their portfolios with the teachers. Their facial expressions and body language suggested a high level of interest (field notes).

During the set up (phase B) some data emerged which indicated a conflict about the value of utilising ICT in early childhood. The following vignette shows how Tui's family/whānau interacted with the webpage:

> *Tui and Kiri were looking at the webpage together. They were at the dining room table and sitting very close together. Tui's body language suggests she is interested in what is on the screen. Tui and Kiri look at some photos and talk about who is in them. Tui tells her mum who the people are. Jack (brother) is nearby and becomes interested in what they are looking at. He comes over and sits at the table. The three of them look at the webpage together.*
>
> *(Phase B, observation 2)*

Although this observation could suggest that there is value in using ICT, when interviewed after the observation Tui's family voiced views to the contrary on the place of the computer in their lives.

> *I find the portfolio better to look at as it is more interactive; the computer is a barrier to communication; it breaks down communication on a personal level (Kiri)*
>
> *(Phase B, family/whānau interview 2)*

These views were reiterated further during phase C

You know I just can't wait to have her portfolio and that she's going to have it when she's twenty (Kiri)

You just don't want to sit a kid in front of a computer … they already get enough time in front of boxes (Kiri)

(Phase C, family/whānau interview 2)

Other data gathered in phase C indicates contrasting views from other families/whānau. For example:

…and for people who don't get to pick them up. Like when I went out to mums the other day and then we sit down and I can show her what they've been doing. And not just what Ngaiti has been doing but what the kindy as a whole has been doing. My sister in … (overseas) she can have a look at the web site and she can have a look at what they are up to and where they are. You can actually see what other children are doing not just your own. You can build a perspective of what is going on…

(Phase C, family/whānau interview 1)

While Tui's family did not see the computer as a valued means of accessing documentation on learning, Naomi valued the website more because she could share Ngaiti's learning with a greater community of learners.

The teachers values also had an impact on the use of ICT. For example when I (as an interviewer) pointed out that the teachers had not engaged children in discussions about the webpage, nor used it in their assessment for learning practices the teachers initial response

cited a lack of knowledge. However further questioning suggested it may be linked to what they value. During the phase B group interview with the teachers, it was suggested they might involve children more when they were uploading information onto the webpage. I was interested to find out the reasons why this did not occur. The following excerpt provides some evidence of what the teachers were thinking:

Vicky – So it is the time, the habit of doing it?

Mere – Motivation. I suppose if you had more people asking about it you might be more motivated to use it

Aroha – Mmmm

Mere – And I guess if you are prioritising with things in the here and now. Like you are prioritising your interactions with children, and the things that

Hine – You do after

Mere – And the things they are interested in

Vicky – Are they not interested because we are not exposing them to it?

Mere – yeah well

Aroha – It's mutual

Mere – yeah it's mutual. But for me I probably value personal interaction more than interactions on the computer even though you are having a personal one at the same time. It's like another step removed talking about something on a computer rather than doing it. You spend time doing it rather than talking about what you have done.

Vicky – Then it is about the things that you value?

Mere – Yeah I think so

(Phase C, teachers group interview)

It is evident that the values of the teachers influence the utilization of ICT in this context. It would be reasonable to assert that the teachers view of ICT as a barrier to personal interactions and conversations creates a power imbalance which influences their decisions about implementing ICT in a meaningful way.

Making Learning Visible

Making learning visible is a way of communicating and involving learners and utilises a sociocultural approach in the assessment for learning process. There are several advantages of making learning visible for the learning community (children, families, whānau, teachers, and others) including:

- It enables reading, revisiting, and recall which promotes further knowledge sharing and building by the learning community.
- It promotes feedback and intrinsic motivation for the children
- It offers opportunities for children to be active participants
- It makes children visible and valued (confirms they are capable and competent)
- It provides and promotes communication within the learning community

(Carr, 2001; Fleer et al., 2006; Rinaldi, 2001)

This section provides some discussion that addresses the research sub-question '*How do children and their families/whānau access information?'* The accessing of information is influenced by the ways that learning is made visible.

While analysing the data that emerged in phase A, I discovered some of the ways in which learning was made visible at Green Road Kindergarten. The teachers were asked 'how do you make visible the learning of the children' and the families were asked 'what do the teachers do that informs you about children's learning?' A compilation of this is presented in table 2.

Table 2. *Ways in which learning was made visible*

Teacher Responses	Family/whānau Responses
Child's portfolio	Child's portfolio
Verbal formal and informal feedback	Verbal formal and informal feedback
Displays and/or photos	Displays and/or photos
Slideshow played at end of session	
Hard copy of emergent curriculum	
Large group learning books	
Collaborative goal setting	
Formal written feedback in portfolio	
Videos	
Newsletters	
Notice boards	

(Phase A, family/whānau questionnaires 1,2,3 and teacher questionnaires 1,2,3)

During the set up of the webpage (phase B), further data was gathered about how learning was being made visible. The webpage, which contained a combination of picture galleries, the weekly slideshow, a blog, and individual or group stories, was identified by parents as a place where learning was now made visible for example:

> *This is how we can get to see your picture – just like you having your portfolio.*
>
> *(Phase B, observation 1)*
>
> *It (the webpage) gives me a window to look into and see what Ngaiti does.*
>
> *(Phase B, family/whānau interview 1)*

The following vignette also demonstrates how learning was made visible for Roman's family when they were observed visiting the webpage:

> *Jade and Roman are sitting close together on two chairs at the dining room table. It is quiet as they wait for the computer. Jade explains to Roman that the computer is thinking. Jade then reads the story on the webpage to Roman. Roman listens intently. He smiles and then tells Jade about the crane he has made on the webpage story and how it works. Roman looks very animated through his facial expressions and moving his hands about.*
> *(Phase B, family/whānau observation 3)*

After the webpage had been in use for three months (phase C) data was once again gathered about how it could make learning visible for this community of learners. Discussion during the family/whānau interview with Roman's mother Jade highlighted how the webpage makes learning visible and more in-depth for them:

> *Vicky – How does the webpage inform you about Roman's learning?*
> *Jade – In the same way as the portfolio's do. It reports what happened – an activity or interest but then you also get teachers observations and commentaries on what has happened. It gives much more information and from different angles rather than if you relied on the child. It makes many layers and angles of information.*
> *Vicky – How does the information about small groups help you?*
> *Jade – How Roman is interacting with other children when I'm not there. Because, say for instance if Roman is working on a project in a group collaboratively or even not collaboratively (having disputes) if I am there it*

changes the whole dynamic of the situation. But if I'm not there I might get Roman's version of it but what I like about being able to see it on the webpage or even in the portfolio is that you get another perspective.
(Phase C, family/whānau interview 3)

Making learning visible was one of the areas where there was a change through implementing a webpage. In phase A families/whānau identified three ways in which learning is made visible. The data suggests that after phase B and C families/whānau recognised that the webpage provided another medium through which learning was made visible and therefore accessible. Roman's family/whānau also identified that more depth and complexity of learning was evident when learning was made visible on the webpage.

Accessing Information

How do children and their families/whanau access information?

Hong & Trepanier-Street (2004) suggest a website can be an effective communication tool between the learning context and families/whānau. The ability for children, their families/whānau and teachers to access information is important as it is a means of communication and building relationships. Accessing information should be easy and meaningful for each stakeholder.

This section also addresses the sub-question of *'How do children and their families/whānau access information?'* In this study the ability to access information was different through each of the phases. Although all families/whānau valued the portfolios as a means of accessing information about learning, Ngaiti and Roman's families/whānau also indicated

the webpage gave them more convenient access. It was also identified that the webpage provided access to a wider range of the community of learners (grandparents, out of town and overseas relatives) associated with the kindergarten.

Accessing portfolios.

When I observed the children accessing their portfolios with the teachers in the kindergarten, Ngaiti and Tui independently accessed their portfolio and Roman responded to teacher Mere asking if he wanted to look at his portfolio. This suggests that children were aware they could access their portfolios with or without an adult.

During the phase A the children and teachers engaged in recall, retelling and reflective discussion culminating in shared understandings and the co-construction of ideas. The following excerpt shows how revisiting the portfolio enables Ngaiti to reflect on his abilities:

> *Aroha – Which page if you had another opportunity would you do differently?*
>
> *Ngaiti – I like that bit and that bit*
>
> *Aroha – Why?*
>
> *Ngaiti – I like sharing. I like building stuff.*
>
> *(Phase A, observation 1)*

The following vignette provides evidence of how children's interest is captured by documented assessments and how they access this evidence of learning.

> *Hine and Tui were looking at Tui's portfolio. As it was a wet day they were sitting together in the kai area which is situated under the veranda of the*

kindergarten. The interaction took approximately 15 minutes and during that time four different children came to observe Hine and Tui reading the portfolio. None of the children offered any verbal contribution. At one point two children moved from where they were sitting to a closer position so they could see the pages. One child stood right beside Hine and Tui looking at the portfolio and one child remained seated at the table next door but remained focused on watching throughout the observation.

(Phase A, observation 2)

As the children were nonverbal during the observation it is difficult to know what they were thinking or how they were developing knowledge. However, their proximity suggests a strong interest in the learning that was visible and the discussion that occurred between Hine and Tui. This vignette suggests that, it is through observing the learning that was visible in Tui's portfolio, that the children were able to develop their own ideas on what learning is valued at Green Road kindergarten.

One family/whānau indicated that the portfolios were accessed by the immediate family and sometimes whānau (extended family). For example:

Ngaiti likes to bring the portfolio home to show Jamie (sibling), dad and grandparents.

(Phase A, family/whānau questionnaire 1)

Accessing the webpage.

After the webpage was set up (phase B) the children and their families/whānau were observed accessing the assessment for learning posted on the webpage. The observations showed that the parent accessed the webpage and usually navigated the pages. This suggests that accessing the webpage is an adult task as opposed to children being able to independently access their portfolios. The teachers had a similar view:

> *Children can't access the webpage by themselves (Mere)*
>
> *It's not as accessible as the portfolio. We need a password and a computer (Aroha).*
>
> *(Phase B, teacher group interview)*

The data suggests that the webpage provided a convenient place for families/whānau to access information in their home. It was identified that some parents had been using the webpage and gave positive feedback about having it to access information:

> *There have been a few parents say they looked at the web site (Hine)*
>
> *I have heard about four parents comment on the webpage (Mere)*
>
> *I've heard parents say "It's great. It's really great. It's good for dad's who can't get in" (Mere)*
>
> *(Phase B, teachers group interview)*
>
> *It's another medium for families to access kindergarten at home (Naomi)*
>
> *(Phase B, family/whānau interview 1)*

While in contrast:

> *It's not as accessible as a portfolio. Tony (dad) might walk in and pick up a portfolio but not actively go to a website. However after hour's access is an advantage (Jade).*
>
> *(Phase B, family/whānau interview 3)*
>
> *It wouldn't be the first media to look at as I use computers all day. Karl (dad) is the same. I find the portfolio better to look at. It's more interactive… more tangible. I'm more likely to look at that (Kiri)*
>
> *(Phase B, family/whānau interview 2)*

The teachers had a brief discussion about why they thought more families/whānau were not accessing the webpage:

> *Parents are still getting to know about it (Mere)*
>
> *We need to promote to parents to motivate them to check it out. That is our job (Aroha)*
>
> *I think it is early days (Mere)*
>
> *Until the parents are promoted the children won't know (Aroha)*
>
> *Once parents show them at home then they (children) will be asking for it (Mere)*
>
> *Yeah (Hine)*
>
> *(Phase B, teachers group interview)*

The idea that teachers are responsible for the success of the webpage was corroborated by one of the parents:

Teachers need to promote the website (Jade).

(Phase B, family/whānau interview 3)

This data indicates there is an expectation that the teachers will promote the webpage to the families/whānau before it can be successfully utilised as a means of accessing information. In phase C of the study the data suggested time constraints, convenience and including a larger community of learners were incentives for using the webpage to access information. For example:

It is great to sit down and look at the pictures (at home) (Naomi)

There is more time at home (pickups and drop offs are a busy time (Naomi)

We can include family that lives out of town or overseas (Naomi)

(Phase C, family/whānau interview 1)

The website offers opportunities to look at it (assessment) more (Jade)

(Phase C, family/whānau interview 3)

Teachers also identified that the webpage was a useful way to reach a larger community of learners and another way for families/whānau to access information

I can see the website as really useful as a community forum or a sharing group thing (Mere)

One more way to access information (Aroha)

They can show their families (Hine)

I think the world wide aspect is good (Mere)

(Phase C, teacher group interview)

It is clear that there were changes over the three phases relating to accessing information. The teachers and the families/whānau identified that while children could access the portfolios independently, they needed the help of an adult to access the webpage. Although all families/whānau valued the portfolios as a means of accessing information about learning, families/whānau also indicated the webpage gave them more convenient access and that the information could be more complex and in-depth. It was also identified that the webpage provided access to a wider range of the community of learners associated with the kindergarten. There also appeared to be an expectation that for the webpage to be successful, teachers would need to promote the benefits and utilisation of it.

Summary

One area of assessment for learning in early childhood that the webpage supported was the ability to involve families/whānau. The data suggests that the webpage provided a medium for children to revisit and reflect upon their knowledge construction in another context. Provision was made through the blog for communication to occur and one family suggested that the webpage also provided multiple layers of information about children.

The data highlights how the introduction of the webpage provided opportunities for children, their families/whānau and teachers to be involved in the assessment for learning process in similar ways to the conventional portfolio system. It provided another means of revisiting, engaging in verbal interactions (reflecting and questioning), developing shared understandings and making connections between home and the learning environment.

Initially the majority of the decisions about what was documented rested mainly with the teachers however the introduction of the webpage did appear to elicit a minor change as children began to ask for their photos to be placed on the webpage. This suggests the webpage is supporting the children, their families/whānau and teachers to be more involved in assessment for learning.

The data identified that families/whānau highly valued the traditional portfolio system. However some families/whānau were willing to engage with the webpage and see the value of utilising it to be involved in the children's assessment for learning. One family identified the webpage as valuable because it makes learning more in-depth through providing a different lens to view the child.

The data also uncovered the view that the successful implementation of the webpage was dependent on the values of the teachers. In this study the teachers appeared to not value the webpage as a means of involving children and their families/whānau in assessment for learning. Finally, the data suggests that both the teachers and the families/whānau felt the successful implementation of the webpage was dependent on the teachers and it was the teachers role to highlight the benefits of using the webpage.

The baseline data highlighted a disparity between where teachers make learning visible and where families/whānau look for it. The data suggests a change occurred by implementing the webpage. It added another medium where learning was made visible and could be accessed by families/whānau. The webpage was a more convenient method of viewing children's assessment for learning especially for those family/whānau members who did

not have access to the kindergarten. However the webpage was not as accessible by children as their clear file portfolio. Another change identified through the introduction of the webpage was that it provided a way to involve extended family that may live out of town or overseas.

A full discussion of the findings and their implication for children, families/whānau and teachers continues in the next chapter.

Chapter Five: Discussion and Conclusion

Interacting with the Webpage: Introduction

In this chapter I will provide a discussion of the findings using the same themes as chapter four. The findings are presented to reflect any post-web changes and address the research question of how the use of ICT can support the involvement of children, their families/whānau and teachers in assessment for learning. I present a conclusion of the findings which is followed by the implications this may have for children, their families/whānau, and their teachers. I also address the limitations of the study, propose further research possibilities and conclude with my final thoughts.

The Involvement of Children, Their Families/Whānau and Their Teachers

When families/whānau are involved in children's assessment for learning children can see the value that is placed on their learning by their families/whānau as well as their teachers. Assessment for learning is a sociocultural practice that values not just the child but all the settings or contexts that child is part of (Ministry of Education, 2004). Assessment for learning links strongly to *Te Whāriki* (Ministry of Education, 1996); should be understandable to children; and should involve their families/whānau (Stuart et al., 2008).

The pre-webpage findings showed that the children and their families/whānau were involved by including their voices in observations and learning stories, goal setting, providing links to families/whānau in the portfolios and verbal interactions as advocated for in *Kei tua o te pae* (Ministry of Education, 2004). Evidence showed that Green Road Kindergarten already had an aspiration to provide sociocultural assessment for learning.

The findings highlight that children, their families/whānau and the teachers were already engaged in revisiting and reflecting on the children's learning. Revisiting provides a means of engaging in higher order thinking such as reflection, re-construction of knowledge and developing further shared understandings. When used in assessment for learning "revisiting invites children to identify their own progress and develop their own goals" (Ministry of Education, 2007, p.10).

The post-webpage findings provided little evidence of change in the way the teachers involved children and their families/whānau in assessment for learning. This is attributed to three of the four teachers not utilising the website as a means of involvement. Other similar studies carried out with young children using ICT to involve families/whānau, suggest a different outcome where the webpage can provide a place for families/whānau to be involved in children's learning projects and assessment for learning (Hong & Trepanier-Street, 2004).

Who is Making the Decisions?

A small shift in who makes decisions was identified in the findings. The pre-webpage findings highlight that teachers made most of the decisions about what was documented. The post-webpage findings identified that children were requesting to have photographs of their work taken more frequently and one child asked to have something put on the webpage. This suggests that the webpage provided a medium that children were comfortable utilising to make their own decisions.

Gardner (2006) asserts that allowing children to make their own decisions is empowering and develops their ability to be intrinsically motivated. Recent research has also highlighted the benefits of empowering children and their families/whānau through using ICT to decide what should be documented (Boardman, 2007; Kankaanrantra, 1996; Lee et al., 2002). However research carried out in Aotearoa New Zealand identifies that only a third of children make their own decisions about what should be recorded in their assessment portfolios (Mitchell, 2008). This study reinforces the findings of Mitchell through showing that decision making was carried out predominately by teachers no matter what medium was used to involve children and their families/whānau in assessment for learning.

It is interesting to note that requests to add evidence of learning that children found valuable did not increase in phase C after the webpage had been in use for three months. This data was examined during the group interview with the teachers and it appears that the teachers values surrounding ICT impacted considerably on the successful utilisation of the webpage. This is discussed further in the next section.

Emerging Values

When teachers make children's learning visible through documentation they are providing feedback to children that they value their learning (Rinaldi, 2001). It is through this sociocultural approach of valuing children's learning that children are enabled to also value themselves as learners (Ministry of Education, 2004).

Carr (1998) states that teachers make visible the learning they value by deciding what is shared with the children and families/whānau. The findings of the study show that the values of the teachers and the families/whānau had an impact on the use of the webpage and how it was used to support the involvement of children, their families/whānau and teachers in assessment for learning. Pre-webpage data suggests a high value was placed on the clear file portfolio system used to document children's learning. The post-webpage data showed that the teachers and the families/whānau had different values about using the webpage.

The findings produced strong evidence that one family did not value ICT as a means of accessing assessment for learning even though they were observed engaging with the webpage in a positive way. This family/whānau felt it was a barrier to communication and that children already get enough time in front of boxes. Cordes & Miller (2000) support this view and suggest that children are in fact too young to be engaging with computers. They raise concerns over the wellbeing of children physically, emotionally and socially. They suggest children be allowed to grow slowly and engage in activities that involve their "hands, hearts bodies and minds" (Cordes & Miller, 2000, p.4). However other research has shown that children's development can be positively supported by the use of ICT and "is not intended to exclude talking but to create more opportunities for talking and listening to take place" (Clark, 2005, p.29). Further research carried out with preschool age children identifies that the computer creates "possibilities for developing children's social competence" (Ljung-Djärf, 2008, p.337). It is also worthy to note that there are multiple studies that emphasise the value of ICT for developing children's literacy skills (Chung &

Walsh, 2006; Colbert, 2006; O'Hara, 2008; Pelletier et al., 2006). The research available makes it apparent that there are more positives for utilising ICT in early childhood than not.

The post webpage findings also suggest that the teachers did not value this ICT tool as a way of involving children and their families/whānau in assessment for learning. Research carried out by Morrow & Mackey (2008) also established that some teachers strongly believe that ICT is not a necessary part of early childhood education. When I (as an interviewer) pointed out that the teachers had not engaged children in discussions about the webpage, nor used it in their assessment for learning practices, two teachers quickly identified that they didn't have enough knowledge and would like to learn more. Similar findings were also evident in the research of Kankaanrantra & Kangassalo (2003). In this study, where young children's learning was put onto a webpage, it was highlighted that "teachers need to have a sound technological competence to be able to utilise ICT in their own work… and a genuine desire for learning that transcends merely having access to the latest applications" (p.291).

Further investigation revealed that the teachers' practices were strongly linked to their values. One teacher in particular identified that she felt the computer was a barrier to communication. The successful use of ICT in early childhood settings is not only related to the ability of the staff but also their pedagogical values and beliefs (Lee et al., 2002; Dakich, 2008; Morrow & Mackey, 2008). For change to occur in teacher's values or beliefs, teachers may need to critically examine their pedagogical beliefs and reflect on their own willingness to change or have a go at something innovative (Phelps & Graham, 2004).

The findings in the study suggest teachers values, beliefs and skills were a factor in using (or not using) the webpage for assessment for learning and to make children's learning visible. This is apparent in other studies too. Morrow & Mackey (2008) found that 42% of the teachers they interviewed cited knowledge, skills or beliefs as a reason for not utilising ICT even though 66% felt it was a useful learning tool. Research carried out by Kankaanrantra (2001) also confirms that the use of ICT was influenced by teachers "access, competence and motivation" (p.270).

Conversely further post-webpage findings indicated that two of the families appeared to highly value the introduction of the webpage. They identified the value of involving a greater community of learners; providing multiple layers of information and more convenient access. When the values and beliefs of families/whānau are reflected in the education environment the children are likely to feel valued and respected (Ministry of Education, 1996). The findings suggest using ICT to involve these children and their families/whānau would clearly do this. The child participants appeared to already be digitally aware through their experiences at Green Road Kindergarten and their home environment. Teachers must be prepared to "find out about and engage with children's virtual lives just as they do with other areas of experience and expertise children bring (Hatherly, 2009, p.7). An ability to value the virtual lives of children and provide experiences that build on and extend their knowledge is beneficial for children. Teachers, according to Lisenbee (2009), need to "capitalize on children's fascination with technology by embedding technological tools in the curriculum to extend children's interaction, exploration and perspective" (p.29). This would be in keeping with the sociocultural

foundations of early childhood education where children are at the centre of their learning (Ministry of Education, 1996).

The post-webpage findings also revealed that teachers and families/whānau felt it was the teacher's role to promote the use of the webpage to ensure it was successfully implemented and engaged with. For this to occur, the teachers would have to value the use of ICT in early childhood education. It is not enough for teachers to aspire to use ICT as a way to involve children and their families/whānau. For ICT to be beneficial as a means of communication the teachers need to help families/whānau to see the advantages of utilising the technology available (Grant, 2009). However, other studies found that the support of families/whānau and those with technological expertise was also a contributing factor to the successful implementation and utilisation of ICT (Kristovich et al., 1998).

There has been an ongoing debate on the value of ICT in early childhood for more than two decades (Brown, 2006). Prensky (2008) suggests we should involve children in ICT as they belong to a digital world that influences them long before they even encounter their first educational environment. However there are also those who advocate for children to be part of a more natural environment and left to play in traditional methods (Cordes & Miller, 2000). Whatever we believe, it is imperative that teachers are critical and reflective when thinking about what guides our practice, as this will ultimately influence the experiences we provide for children (Gibbons, 2006).

Extra Visibility

As identified by Fleer et al., (2006) "Documentation confirms to children that they are capable and worth listening to" (p.131). The pre-webpage findings showed that the existing clear file portfolios were valued by children, families/whānau and teachers alike. They provided visual evidence of children's learning and acted as a prompt for the children to remember and reflect on what they had learnt. Children were able to recall and retell their stories to others in their greater learning community. This sociocultural practice enhanced the assessment process (Ministry of Education, 2004) carried out at Green Road Kindergarten.

Families identified that learning was visible in the kindergarten through displays and on a slideshow running at the end of the kindergarten session. There has emerged, through research, innovative ways of making learning visible. Fleer et al., (2006) found that "Technology has transformed how documentation can be generated and presented… New forms of documentation are emerging as information and communication technology (ICT) changes" (Fleer et al., 2006, p.122). Similarly Hong & Trepanier-Street (2004) found during their case study that technology was a powerful way to promote children's learning and to communicate this to families. Although multiple studies have identified the benefits of using ICT to empower children (Clark, 2005; Coutts & Kaye, 2009; Lee et al., 2002), as identified earlier, the decisions about which photographs were used was made mainly by the teachers. This may have created a power imbalance in the assessment for learning process as children had very little say in what learning was valued.

The post-webpage findings revealed some small changes to how learning was made visible. It was apparent that the webpage provided another medium to make learning visible to children and their families/whānau. The webpage was made up of picture galleries, the weekly slideshow, a blog and individual and group learning stories. The findings suggest using the webpage was similar to having access to a portfolio. The webpage provided information about a wider group of learners. The findings produced evidence that the learning was not only visible but also more in-depth and complex. There was also evidence of the webpage promoting conversations which created new understandings and developed collaborative knowledge with a greater community of learners.

The use of the webpage enabled the children to engage with the technology that made their learning visible in more than one place. This made the webpage a meaningful part of the children's learning as they utilised technology in a meaningful way (Dakich, 2008; Pelletier et al, 2006). Seeing themselves on the webpage provided an opportunity for "children to experience technology as a communication and information tool with vast possibilities" (Sheridan & Pramling-Samuelsson, 2003, p.280). This was also evident in the findings discussed in the next section as families/whānau used the webpage to access information.

Further Connections – Learning is More Accessible

The pre-webpage findings indicate that children and families/whānau found evidence of learning in far fewer places than what teachers believed they were providing. The findings suggest learning was visible to children and their families/whānau in portfolios; through verbal feedback and from displays and/or photos. However the teachers' believed they

were providing evidence of learning in these places as well as many others (see table 2, p.67). This highlights the importance of communication between teachers and children and their families/whānau to ensure learning is visible, meaningful and accessible to all. The ways in which evidence of learning is accessed by families/whānau provides information to the teachers about what documentation is viewed as authentic and accessible. When documentation includes children and/or their families/whānau they are more aware of the learning that has occurred and more likely to access and revisit evidence of learning (Hong & Trepanier-Street, 2004).

The post-webpage findings suggest that the webpage provided a convenient way of accessing evidence of children's learning for children and their families/whānau. This was also found to be true in other studies carried out in the early childhood sector. For example Kristovich et al. (1998) found that "the convenience not only encourages parents to view more of the classroom activities, the predominant use of pictures and scanned images encourages viewing with their children, fostering communications and conversations" (p.252). Further research carried out by Lee et al., (2002), on using ICT to document learning, also revealed that using ICT was "pivotal in providing easier access to documentation and the curriculum, especially for children and their families" (p.10).

Recent research has found that using ICT for communication can strengthen the relationships between children and their teachers, children and their families/whānau and teachers and families/whānau (Grant, 2009) and to enhance the learning opportunities of children (Biddulph et al., 2003; Education Review Office, 2008; Ministry of Education, 2005). This is particularly relevant for families who can use the webpage as a convenient

method of accessing assessment for learning, especially after kindergarten hours; for family members that don't go into kindergarten and for whānau that live out of the area.

Signing off the Webpage: Conclusion of Findings

The sociocultural underpinnings of early childhood education are reflected through the use of ICT. ICT can provide a way for reciprocal relationships (with people, places or things) to develop (Pelletier et al., 2006). ICT is about tools, communication and relationships (Ministry of Education, 2009a). It can provide a platform for assessment for learning to take place which can include multiple voices; instant feedback; intrinsic motivation; and build on children's strengths and interests (Bolstad, 2004; Ministry of Education, 2009a; O'Hara, 2008). ICT can be a tool for making learning visible and accessible to a large community of learners (Hong & Trepanier-Street, 2004). ICT can also be a way of strengthening partnerships between the education provider and families/whānau which contributes to quality outcomes for children (Biddulph et al., 2003; Education, Review Office, 2008).

Previous studies have reinforced these benefits and more (Boardman, 2007; Clarke, 2005; Hong & Trepanier-Street, 2004; Kristovich & Hertzog, 1998; Lee et al., 2002; O'Hara, 2008). However this study found that while the use of ICT provided some benefits there was no major shift that increased the involvement of children, their families/whānau and teachers in assessment for learning.

The webpage was another place to make visible the learning of the children. It provided extra opportunities for children to revisit their learning and build new collaborative

knowledge in a different environment. The webpage was a place that made evidence of learning and assessment for learning accessible to a greater community of learners. The webpage however, was only available to children with the help of an adult (or older peer) where as children were able to independently access the existing portfolio system.

Although there are multiple research studies that identify the benefits of using ICT to empower children (for example Clark, 2005; Coutts & Kaye, 2009; Lee et al, 2002), in this study the majority of decisions made about what was recorded and consequently uploaded to the webpage rested with the teachers. The decision making process was strongly linked to the values of the teachers. What teachers selected (made decisions about) provided evidence of what learning they valued (Carr, 1998). The successful implementation of ICT (the webpage) was also linked to the knowledge, capabilities, values and beliefs of the teachers.

There were also disparities between the family/whānau participants about the value of utilising ICT in assessment for learning. Influences such as the values and beliefs of the families had an impact on whether the webpage was seen as a valuable source of information; whether it could be used by extended family/whānau members; and whether or not children should access it. This emphasises the fact that not everybody values ICT as a cultural tool or a means of communication or as a language/literacy that should be included in the early childhood curriculum (Cordes & Miller, 2000; Grant, 2009).

Each participant appeared to value ICT in different ways. Overall the study highlighted that there were multiple influences surrounding the use of ICT to support the involvement

of children, their families/whānau and teachers in the assessment for learning process. The findings suggest that the use of ICT in early childhood is still contentious, complex and evolving.

Implications for children.

Many children in Aotearoa New Zealand are already exposed to ICT in a variety of ways before they get to an early childhood centre. They are growing up with computers, digital cameras, phones, i-phones and the internet already a part of their social and cultural world (Hatherly, 2009; Zevenbergen & Logan, 2008). This highlights the necessity for teachers to provide experiences that reflect these everyday tools and practices. "To be able to master ICT early in life is not only a question of necessity, but also of democracy, rights and equality" (Sheridan & Pramling-Samuelsson, 2003, p.281).

I believe there are two ways the findings can impact on children. Firstly, as suggested by the sociocultural theory that frames this study, children are a product of their time and culture. They not only are influenced by their environment but also exert an influence on creating their own future environment (Mawson, 2003). This is particularly evident in relation to ICT. While children are engaging with ICT they are the participants of a three-way relationship where they are using ICT to construct knowledge about their learning while, gaining knowledge about ICT, and creating a future which extends on the ways in which ICT can be used (Ottesen, 2006).

Secondly, as suggested by Rameka (2007) children unwittingly engage in activities that have social, political, economic and cultural significance. Through the Ministry of

Education advocating for the inclusion of ICT into the early childhood curriculum (Ministry of Education, 2005) there is the suggestion that ICT is a valuable tool for our future social, cultural, political and economic contexts. When using ICT children are developing an inherent acceptance of this in their current and future contexts.

I also wonder whether it is worth contemplating how children might see ICT (computers, digital cameras and the internet). Is it something that needs to be considered anymore than any other part of the curriculum? It is currently a cultural artefact in the same way that books have been for many years. It is possible only the older teachers knew a world without ICT as it has always been present for children, young parents and young teachers (Ching, Wang, Shih & Kedem, 2006). It may then be valuable for children to see teachers utilising ICT in their own daily work. This will provide a positive role model that reflects the value of multiple forms of literacy in our society (Siraj-Blatchford & Siraj-Blatchford, 2006).

In terms of assessment for learning, it is already evident that ICT can provide a place where learning can be instantly revisited (Boardman, 2007; Hong & Broderick, 2003). ICT can be a means of communication for young children (Ramsey, Breen, Sturm, Lee & Carr, 2006) and has been identified as a useful tool for capturing the voice of the child (Education Review Office, 2008). However this is dependent upon the knowledge, skills, values and beliefs of teachers (Kankaanrantra, 2001; Kankaanrantra & Kangassalo, 2003; Morrow & Mackey, 2008; Phelps & Graham, 2004).

Implications for families/whānau.

This study reinforced the findings of previous research (for example Boardman, 2007; Colbert, 2006; Good, 2005; Ministry of Education, 2009b) where ICT was a useful medium for strengthening the communication between the early childhood service and the family/whānau. The webpage made the learning that was valued visible and accessing information easier for a wider community of learners. This included siblings and parents who were unable to visit the kindergarten, as well as extended family/whānau that lived out of town or overseas. By involving others in assessment for learning a holistic and multifaceted perspective of the child occurs (Fleer et al., 2006).

For families/whānau this provides a further means of being involved in the children's learning journey. The accessibility provided families/whānau with the opportunity to include their voice in the assessment for learning through commenting on the webpage or extending on the children's learning through discussions at home. Siraj-Blatchford & Whitebread (2003) suggest families/whānau value this so children can "share their enjoyment of it (their learning) with their parents in the comfort and peace of the home setting" (p.28). However it is necessary to remember that there may be a digital divide that excludes some families/whānau that do not have access to computers or the internet (Zevenbergen & Logan, 2008).

Overall I believe the sociocultural perspective provides a lens wherein the role of ICT in supporting families/whānau is fairly evident. Reciprocal relationships are paramount in early childhood education and ICT can provide a communication link between multiple

stakeholders. However the use of ICT will be influenced by families/whānau values and beliefs surrounding ICT in early childhood education.

Implications for teachers.

The findings suggest it is necessary for teachers to lead the successful integration of ICT into the curriculum. It is the teachers role to inform families/whānau of the benefits of utilising ICT and to show families/whānau what knowledge and skills the children have developed through the use of ICT (Grant, 2009; Siraj-Blatchford & Whitebread, 2003). Again, this is totally dependent on the existing knowledge, values and beliefs teachers already hold. For this reason, teachers might benefit from professional development that focuses as much on, developing a culture of embracing change and becoming a lifelong learner, as gaining skills and knowledge about ICT (Phelps & Graham, 2004). Gaining new knowledge and understanding about the use of ICT and how to integrate it successfully might also remove some of the fear surrounding the use of ICT in early childhood (Morrow & Mackey, 2008)

Finally, from a sociocultural perspective it is the role of the teachers to provide a learning environment that reflects the social and cultural context each child is growing up in (Ministry of Education, 1996). It would be remiss of teachers to neglect the opportunities ICT provides to build strong collaborative and reciprocal relationships with families/whānau. However teachers need to be reflective and critical in their ICT use (Brown, 2006; Lindsay, 2006**)**. This not only includes how and what is documented on a webpage but also how it is used with the children on a daily basis.

Limitations of the Research

This study was limited by its small number of participants. The study used only a small sample of the community of learners associated with Green Road Kindergarten. The sample will not reflect the diversity of Aotearoa New Zealand as the participants came from a middle to high socioeconomic area. This study will not reflect the early childhood sector as a whole but rather only the reality of the three children, their families/whānau and the three teachers involved.

My first challenge was carrying out research in my own place of work. This required me to be highly aware of my subjectivity when gathering and analysing data. I needed to step back from the set up and implementation of the webpage so that I could gather data from the other teachers. While writing the report I have reflected many times on how different the data could have been if I was not removed from the study. The interest in setting up and implementing the webpage came from my interest rather than a whole team approach.

My second challenge was the ability to 'ask the right questions'. However on reflection I have come to realize that it is not my lack of ability to ask the right questions that has become apparent through the research. Rather it is the nature of qualitative research to produce more questions throughout the research process rather than answer specific question.

Future Possibilities

Further research in different contexts may provide evidence to support or dispel the findings of this study. Evidence would need to come from a much larger scale research project to truly reflect the early childhood sector of Aotearoa New Zealand. It may also be

useful to carry out research which focuses on the benefits of excluding ICT from children's early learning environment. While there are multiple research papers which suggest the use of ICT is beneficial to young children, there is a paucity of information to support arguments to the contrary and little evidence of the link between ICT and learner achievement (Siraj-Blatchford & Siraj-Blatchford, 2006; Stephen & Plowman, 2003).

Turning Off the PC: The Final Word

It seems apparent from both this study and other research that there are benefits for teachers when using ICT in early childhood education for the documentation of learning; making learning visible; strengthening partnerships between families/whānau and the education environment; and to include multiple voices in assessment for learning (Boardman, 2007; Bolstad, 2004; Hong & Trepanier-Street, 2004; Lee et al., 2002; O'Hara, 2008; Rinaldi, 2001).

From a sociocultural perspective the webpage had the potential to include multiple voices in the assessment for learning process however the findings suggest that this did not occur. It is also clear in this study that there is s strong link between the integration of ICT into early childhood and the knowledge, skills, values and beliefs of the teachers. Furthermore the uptake of ICT opportunities offered by the learning environment is also dependent upon the values and beliefs of families/whānau. The arguments for and against using technology in early childhood are worth considering if only to ensure that teachers are reflective in their approach and ensure that ICT is used in ways that will involve children, their families/whānau and teachers in positive ways.

References

Alvesson, M. (2002). *Postmodernism and social research.* Buckingham: Open University Press.

Bentzen, W. (2000). *Seeing young children: A guide to observing and recording behaviour. (4th ed).* Canada: Delmar Thomson Learning.

Biddulph, F., Biddulph, J. & Biddulp, C. (2003). *The complexity of community and family influences on children's achievement in New Zealand: Best evidence synthesis.* Wellington: Ministry of Education.

Bolstad, R. (2004). *The role and potential of ICT in early childhood education: A review of New Zealand and international literature.* Ministry of Education. Wellington, New Zealand.

Boardman, M. (2007). 'I know how much this child has learned. I have proof!' Employing digital technologies for documentation processes in kindergarten. *Australian Journal of Early Childhood, 32* (3), 59-66.

Boyd, S. (2008). Spotlight on ICT in early childhood: An interview with Ann Hatherly. *Early Childhood Folio, 12,* 46-47.

Brooker, L. (2001). Interviewing Children. In G. Mac Naughton, S.A. Rolfe, & I. Siraj-Blatchford. (Eds.). *Doing early childhood research: International perspectives on theory and practice.* Australia: Allen & Unwin.

Brown, M. (2006). Toys, tools and teachers: The role of ICT in early childhood education. *Computers in New Zealand Schools, 18* (2), 2-3.

Brown, M & Murray, F. (2006). ICT and young children: Laying the foundations for the digital future. *Computers in New Zealand Schools, 18* (2), 43-48.

Burr, V. (1995). *An introduction to social constructionism.* London; New York: Routledge.

Carr. M. (1998). *Assessing children's learning in early childhood settings*. Wellington: New Zealand Council for Educational Research.

Carr, M. (2001). *Assessment in early childhood settings: Learning Stories.* London: Paul Chapman Publishing.

Carr, M., Hatherly, A., Lee, W., & Ramsey, K. (2003). Te Whāriki and assessment: A case study of teacher change. In J. Nuttall (Ed.). *Weaving Te Whāriki. Aotearoa New Zealand's early childhood curriculum document in theory and practice.* Wellington: New Zealand Council for Educational Research.

Ching, C., Wang, X.C., Shih, M., & Kedem, K. (2006). Digital photography and journals in a kindergarten – first grade classroom: Toward meaningful teacher integration in early childhood education. *Early Education and Development, 17* (3), 347-371.

Chung, Y. & Walsh, D. (2006). Constructing a joint story-writing space: The dynamics of young children's collaboration at computers. *Early Education and Development, 17* (3), 373-420.

Clark, A. (2005). "The silent voice of the camera? "Young children and photography as a tool for listening. *Early Childhood Folio, 9,* 28-33.

Cohen, L., Manion, L., & Morrison, K. (2000). *Research methods in education (5th ed).* London: Routledge Farmer.

Colbert, J. (2006). New forms of old art – children's storytelling and ICT. *Early Childhood Folio, 10,* 2-6.

Coll, R.K. & Chapman, R. (2000). Qualitative or quantitative? Choices of methodology for cooperative researchers. *Journal of Cooperative Education, 3,* (1), 25-34.

Cordes, C. & Miller, E. (2000). *Fools gold: A critical look at computers in childhood.* College Park, MD: Alliance for Childhood. Retrieved from the World Wide Web: http://www.allianceforchildhood.net/publications.

Coutts, T. & Kaye, B. (2009). Inspiring and engaging learners through ICT. *Swings & Roundabouts*, 4, 4-15. Retrieved June 19, 2010 from World Wide Web: http:/www.ece.org.nz/swings&roundabouts.

Cullen, J. (2001). Ethics and assessment in early childhood programmes. *Early Education, 27*, 5-11.

Culligan, M. (2003). Digital natives in the classroom. In B. Hoffman (Ed.).*Encyclopaedia of Educational Technology. Retrieved from the World Wide Web: http://coe.sdsu.edu/eet/articles/digital*.

Dakich, E. (2008). Towards the social practice of digital pedagogies. In N. Yelland, G. Neal & E. Dakich. (Eds.). *Rethinking education with ICT: New directions for effective practices*. (pp13-30). The Netherlands: Sense.

Davidson, C. & Tolich, M. (Eds.). (2003). *Social science research in New Zealand: Many paths to understanding (2nd ed).* Auckland: Pearson Education New Zealand Ltd.

Denzin, N.K. & Lincoln, Y.S. (Eds.). (2003). *The landscape of qualitative research: Theories and issues (2nd ed).* California: Sage Publications.

du Fall, J. (2006). Watch and learn. A journey into digital observation. *Early Education, 39,* 13-16.

Education Review Office/Te Tari Arotaki Matauranga. (2008). *The quality of assessment in early childhood education.* Wellington: Author.

Edwards, A. (2001). Qualitative designs and analysis. In Mac Naughton, G., Rolfe S., & Siraj-Blatchford, I. (Eds.). *Doing early childhood research: International perspectives on theory and practice.* Australia: Allen & Unwin.

Edwards, S. (2005). Constructivism does not only happen in the individual: Sociocultural theory and early childhood education. *Early Child Development and Care, 175* (1), 37-47.

Fleer, M. (2002). Sociocultural assessment in early years – myth or reality? *International Journal of Early Years Education, 10* (2), 105-120.

Fleer, M., Edwards, S., Hamner, M., Kennedy, A., Ridgeway, A., Robbins, J., Surman, L. (2006). *Early childhood learning communities: Sociocultural research in practice.* Australia: Pearson.

Gardner, J. (Ed.). (2006). *Assessment and learning.* London: Sage.

Gibbons, A. (2006). The politics of technology in early childhood in Aotearoa New Zealand: Fitting early childhood educators in the ICT grid. *Australian Journal of Early Childhood, 31* (4), 7-14.

Good, L. (2005). Snap it up. Using digital photography in early childhood. *Childhood Education, 82* (2), 79-85.

Grant, L. (2009). Children's role in home-school relationships and the role of digital technologies: A literature review. Retrieved from the World Wide Web: www.futurelab.org.uk/projects/home-school-relationships.

Guba, E. (1981). Criteria for assessing the trustworthiness of naturalistic inquiries. *Educational Communication and Technology, 29* (2), 75-91.

Hatch, J. A. (2007). Assessing the quality of early childhood research. In J. Amos Hatch (Ed.). *Early childhood qualitative research.* (pp223-244). New York: Routledge, Taylor & Francis Group.

Hatherly, A. (2009). ICT and the greatest technology: A teachers mind. *Early Childhood Folio, 13*, 7-11.

Hayes, M. (2006). What knowledge are we considering when children use computers? In M. Hayes & D. Whitebread (Eds.). *ICT in the early years.* Buckingham: Open University Press.

Hong, S. & Broderick, J. (2003). Instant video revisiting for reflection: Extending the learning of children and teachers. *Early Childhood Research & Practice, 5* (1). Retrieved from the World Wide Web: http://ecrp.uiuc.edu.

Hong, S. & Trepanier-Street. (2004). Technology: A tool for knowledge construction in a Reggio Emilia inspired teacher education program. *Early Childhood Education Journal, 32* (2), 87-94.

Kankaanranta, M. (1996). Self-Portrait of a child: Portfolios as a means of self-assessment in preschool and primary school. ED403058, 11 pages retrieved from ERIC clearinghouse.

Kankaanranta, M. (2001). Constructing digital portfolios: Teachers evolving capabilities in the use of information and communication technology. *Teacher Development, 5* (2), 259-275.

Kankaanranta, M. & Kangassalo, M. (2003). Information and communication technologies in Finnish early childhood environments. *Childhood Education, 79* (5), 287-292.

Katz, L. & Chard, S. (1996). The contribution of documentation to the quality of early childhood education. *Eric Digest ED393608.* Retrieved from www.eric.ed.gov.

Keyes, C. (2002). A way of thinking about parent/teacher partnerships for teachers. *International Journal of Early Years Education 10* (3), 177-191.

Kirkpatrick, G. (2008). *Technology & social power.* New York: Palgrave Macmillan.

Kristovich, S., Hertzog, N. & Klein, M. (1998). Connecting families through innovative technology in an early childhood gifted program. In *Proceedings of the Families, Technology, and Education Conference, 30 October – 01 November, 1997.* (pp.247-255). Chicago, Illinois: Retrieved from EDRS, ERIC clearinghouse.

Lee, W., Hatherly, A. & Ramsey, K. (2002). Using ICT to document children's learning. *Early Childhood Folio 6,* 10-16.

Leeson, C. (2007). Key issues in the development of an effective ethical protocol for research involving young children. In Campbell, A. and Groundwater-Smith, S. (Eds.). *An ethical approach to practitioner research.* London: Routledge.

Lincoln, Y. & Guba, E. (2007). But is it rigorous? Trustworthiness and authenticity in naturalistic evaluation. *New Directions for Evaluation, 114,* 11-25.

Lindsay, A. (2006). Education in the mouse age: A kindergarten perspective on the rise of ICT. *Computers in New Zealand Schools, 18* (2), 36-41.

Lisenbee, P. (2009). Whiteboards and web sites: Digital tools for the early childhood curriculum. *Young Children, 64* (6), 92-95.

Ljung-Djärf, A. (2008). To play or not to play – That is the question: Computer use within three Swedish preschools. *Early Education and Development, 19* (2), 330-339.

Mac Naughton, G., Rolfe S., & Siraj-Blatchford, I. (Eds.). (2001). *Doing early childhood research: International perspectives on theory and practice.* Crows Nest, Australia: Allen & Unwin.

Mawson, B. (2003). A question of values: Young children in a technological world. *Early Education, 33,* 13-17.

Merriam, S. (1998). *Qualitative research and case study applications in education. Revised and expanded from case study research in education.* San Francisco, USA: Jossey- Bass.

Miller, E. & Almon, J. (2009). *Crisis in the kindergarten: Why children need to play in school.* College Park, MD: Alliance for Childhood. Retrieved from the World Wide Web: http://www.allianceforchildhood.net/publications.

Ministry of Education. (1996). *Te Whāriki/ He Whāriki mātauranga mō ngā mokopuna o Aotearoa: Early childhood curriculum.* Wellington: Learning Media.

Ministry of Education. (2004). *Kei tua o te pae assessment for learning: Early childhood exemplars, books 1-6.* Wellington: Learning Media.

Ministry of Education. (2005). *Foundations for discovery: Supporting learning in early childhood education through information and communication technologies: A framework for development.* Wellington, New Zealand: Author.

Ministry of Education. (2007). *Kei tua o te pae assessment for learning: Early childhood exemplars. Book 10.* Wellington: Learning Media.

Ministry of Education. (2008). Exemplifying good learning. *New Zealand Education Gazette: Tukutuku kōrero,* 87(10), 4-6.

Ministry of Education. (2009a). *Kei tua o te pae assessment for learning: Early childhood exemplars books 16-20.* Wellington: Learning Media.

Ministry of Education. (2009b). Families and the full story. *New Zealand Education Gazette: Tukutuku kōrero, 88 (5), 4.*

Mitchell, L. (2008). *Assessment practices and aspects of curriculum in early childhood education. Results of the NZCER national survey for ece services.* Wellington. New Zealand Council for Education Research. Retrieved from the World Wide Web: http://nzcer.org.nz

Moran, M.J. & Tegano, D.W. (2005). Moving toward visual literacy: Photography as a language of teacher inquiry. *Early Childhood Research & Practice, 7* (1). Retrieved May 15, 2008 from World Wide Web: http://ecrp.uiuc.edu.

Morrow, D. & Mackey, J. (2008). ICT in early childhood education: Perceptions, potential and reality. *Journal of Australian Research in Early Childhood Education, 15* (2), 41-52.

Nuttal, J. (Ed.). (2003). Weaving *Te Whāriki: Aotearoa New Zealand's early childhood curriculum document in theory and practice.* Wellington: New Zealand Council for Educational Research.

O'Hara, M. (2008).Young children, learning and ICT: A case study in the UK maintained sector. *Technology, Pedagogy and Education, 17* (1), 29-40.

Ottesen, E. (2006). Learning to teach with technology: Authorising practised identities. *Technology, Pedagogy and Education, 15* (3), 275-290.

Pelletier, J., Reeve, R., & Halewood, C. (2006).Young children's knowledge building and literacy development through knowledge forum. *Early Education and Development, 17* (3), 323-346.

Phelps, R. & Graham, A. (2004). Developing technology together: A whole-school meta-cognitive approach to ICT teacher professional development. *Journal of Computing in Teacher Education, 24* (4), 125-134.

Prensky, M. (2001). Digital natives, digital immigrants. *On The Horizon, 9* (5), 1-5.

Prensky, M. (2008). Turning on the lights. *Educational Leadership, 65* (6), 40-45.

Rameka, L. (2007). Māori approaches to assessment. *Canadian Journal of Native Education, 30* (1).Retrieved from Proquest.

Ramsey, K., Breen, J., Sturm, J., Lee, W., & Carr, M. (2006). *Strengthening learning and teaching using ICT*. Roskill South Kindergarten Centre of Innovation 2003 – 2006: Final Research Report. Retrieved December 2010 from the World Wide Web: http://www.educationcounts.govt.nz/publications/ict/77107/3

Rinaldi, C. (2001). Documentation and assessment: What is the relationship? In C. Giudici, C. Rinaldi & M. Krechevsky (Eds.). *Making learning visible: Children as individual and group learners* (pp78-89). Reggio Emilia, Italy: Reggio Children.

Rogoff, B. (2003). *The cultural nature of human development.* New York: Oxford University Press.

Scott, D. & Morrison, M. (2006). *Key ideas in educational research.* London: Continuum.

Siraj-Blatchford, J., & Siraj-Blatchford, I. (2006). Chapter1: An Emergent Technology Curriculum. In *A guide to developing the ICT curriculum for early childhood education.* Stoke on Trent: Trentham Books.

Siraj-Blatchford, J. & Whitebread, D. (2003). *Supporting information and communications technology in the early years.* Buckingham: Open University Press.

Sheridan, S., & Pramling-Samuelsson, I. (2003). Learning through ICT in Swedish early childhood education from a pedagogical perspective of quality. *Childhood Education, 79* (5), 276-282.

Smith, A. (1998). *Understanding children's development: A New Zealand perspective (4th ed).* Wellington: Bridget Williams Books.

Stake, R. (1995). *The art of case study research.* Thousand Oaks, California: Sage.

Stephen, C. & Plowman, L. (2003). ICT in pre-school settings: Benign addition or playroom evolution? *Early Childhood Folio, 7,* 33-38.

Stuart, D., Aitken, H., Gould, K., & Meade, A. (2008). Evaluation of the implementation of *Kea Tua o te Pae: Assessment for learning*: Early childhood exemplars: Impact evaluation of the *Kea Tua o te Pae* 2006 professional development.

Walters, K. (2006). *Capture the moment: Using digital photography in early childhood settings*. *Research in practice series.* Australia: Early Childhood Australia Inc.

Yin, R. (1994). *Case study research: Design and methods (2nd ed).* Thousand Oaks, California: Sage.

Zevenbergen, R. (2007). Digital natives come to preschool: Implications for early childhood practice. *Contemporary Issues in Early Childhood, 8* (1), 18-28.

Zevenbergen, R. & Logan, H. (2008). Computer use by preschool children: Rethinking practice as digital natives come to preschool. *Australian Journal of Early Childhood, 33* (1). Retrieved from the World Wide Web: http://earlychildhoodaustralia.org.au.

Appendix A: Ethics

Tel: +64 3 , Fax: +64 3
Email: @canterbury.ac.nz

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

CHILD'S INFORMATION SHEET

To be read by researcher

Hi *(child's name)*

I am writing a story about us making a web page at kindy. Can you remember what a web page is? *(If not, a brief explanation will follow).* I would like to write about you looking at our web page here and at your house, and about you looking at your folder with the teachers.

Before I write the story, I have to ask you if I can write about you. Would you be willing to be part of our story? This means I will listen to what you say when you are looking at your folder with (*name of teacher who looks after the folder),* and also when you are discussing or looking at our web page at kindy and at home. I have already asked your Mum/Dad and they have said it is okay for you to do this if you want.

You only have to talk if you want to and you can stop anytime you want. I will read back what you have said so you can hear it and change it if you want.

To take part you need to sign this form *(show them the consent form and read it to them)* and tick the YES or NO box.

Thanks *(child's name)*

Tel: +64 3 , Fax: +64 3
Email: @canterbury.ac.nz

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

PARENT/CAREGIVER INFORMATION SHEET

August 2009

Web bound: How does the use of ICT support the involvement of children, their families/whānau and their teachers in assessment for learning?

My name is Vicky Wilson, a teacher at [redacted] and I am studying towards a Master of Teaching and Learning degree at the Canterbury University. To fulfil the requirements, I am undertaking a research project in [redacted]

This research project will involve setting up a web page within the kindergarten and inviting the children to make decisions about what should be included on it. After that, selected children will be able to make decisions about what they would like to have on the web page for you, their parents to view at home (this will include photos and possibly short video clips). No names will be used on the web page. The web page will be password protected.

The research both within Aotearoa New Zealand and internationally identifies that Information and Communications Technologies (ICT) can be used to enhance the involvement of children, their families/whānau and their teachers in assessment for learning. Children who participate in their own assessment are more likely to see themselves as confident and competent learners. It is also recognised that the collaborative relationships formed between you and the learning environment can strengthen the learning and development of your child.

This project will involve observations of each child within the kindergarten during three stages. (Phase A) Baseline – a measure of existing practice; (Phase B) Web page development and early implementation; (Phase C) Post implementation after 3 months. These observations may include teachers. Each child will also be observed for approximately 15-30 minutes in their own home during phase B and phase C. After each observation, the family/whānau will be interviewed. The total time in the home is expected to be between 60-75 minutes. Each family will be asked to complete a questionnaire to provide baseline information during phase A. Observations and interviews will take place over term 4, 2009 and term 1 of 2010. Although there is no perceived risk in participating in the research, you need to be fully aware that photos and/or video clips involving your child will be published on the web page.

All information gathered is confidential and the resulting report will not contain any identifying details. Pseudonyms will be used to protect the identity of participants within the data. All information will be stored in a locked file in my home with access only available to myself.
The raw data is kept for a minimum of five years before being destroyed. If you wish to receive a summary of the research when the project is completed, please tick 'yes' on the consent form.

Should you agree for you and your child to participate, you and your child maintain the right to withdraw at anytime throughout the research process – **participation is strictly voluntary.** Your child will also be given the opportunity to sign a consent form, will fully informed of the processes they are involved in, and informed of their right to withdraw at any time . All care will be taken to make sure your child is not disadvantaged through being involved in the research.

If you have any questions regarding this project, please do not hesitate to contact myself or one of my supervisors. If you have any complaints you may also contact the Chair of the Educational Research Human Ethics Committee: see contact details below.

Thank you for taking the time to consider my request. Please fill out the attached consent form to indicate your willingness to participate and that you fully understand what will be expected from you and your child.

Yours Sincerely

Vicky Wilson - Teacher
[redacted]

[redacted]
vicky-wilson@xtra.co.nz

Supervisors

Dr. Alexandra Gunn
School of Education Studies & Human Development
University of Canterbury
Private Bag 4800
Christchurch 8140

alex.gunn@canterbury.ac.nz
Ph:03 364 2987 etxn 4929

Dr. Donna Morrow
School of Literacies & Arts in Education
University of Canterbury
Private Bag 4800
Christchurch 8140

donna.morrow@canterbury.ac.nz
Ph: 03 364 2987 extn 44109

Tel: +64 3 , Fax: +64 3
Email: @canterbury.ac.nz

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

TEACHERS INFORMATION SHEET

August 2009

Web bound: How does the use of ICT support the involvement of children, their families/whānau and their teachers in assessment for learning?

My name is Vicky Wilson a teacher at [redacted] and I am studying towards a Master of Teaching and Learning degree at the Canterbury University. To fulfil the requirements, I am undertaking a research project in [redacted].

This research project will involve setting up a web page within the kindergarten and inviting the children to make decisions about what should be included on it. After that, selected children will be able to make decisions about what they would like to have on the web page for their parents to view at home (this will include photos and possibly short video clips). No names will be used on the web page to identify children. The web page will be password protected.

The research both within Aotearoa New Zealand and internationally identifies that Information and Communications Technologies (ICT) can be used to enhance the involvement of children, their families/whānau and their teachers in assessment for learning. Children who participate in their own assessment are more likely to see themselves as confident and competent learners. It is also recognised that the collaborative relationships formed between families/whānau and the learning environment can strengthen the learning and development of children.

This project will involve observations of three children within the kindergarten during three stages. (Phase A) Baseline – a measure of existing practice; (Phase B) Web page development and early implementation; (Phase C) Post implementation after 3 months. ***These observations may include teachers.*** Each child will be observed for approximately 15-30 minutes in their own home during phase B and phase C. After each observation, the family/whānau will be interviewed. The total time in the home is expected to be between 60-75 minutes. The teachers will be asked to complete a questionnaire to provide baseline information during phase A. The teachers will be interviewed during phase B and phase C. The observations and interviews will take place over term 4, 2009 and term 1 of 2010.

All information gathered is confidential and the resulting report will not contain any identifying details. Pseudonyms will be used to protect the identity of participants. All information will be stored in a locked file in my home with access only available to myself. The raw data will be kept for a minimum of five years and then destroyed. Should you agree to participate, you maintain the right to withdraw at anytime throughout the research process – **participation is strictly voluntary.** If you wish to receive a summary of the research when the project is completed, please tick 'yes' on the consent form.

If you have any questions regarding this project, please do not hesitate to contact myself or one of my supervisors. If you have any complaints you may also contact the Chair of the Educational Research Human Ethics Committee: see contact details below.

Thank you for taking the time to consider my request. Please fill out the attached consent form to indicate your willingness to participate and that you fully understand what will be expected from you.

Yours Sincerely

Vicky Wilson - Teacher
[redacted]

[redacted]
vicky-wilson@xtra.co.nz

Supervisors

Dr. Alexandra Gunn
School of Education Studies & Human Development
University of Canterbury
Private Bag 4800
Christchurch 8140

alex.gunn@canterbury.ac.nz
Ph:03 364 2987 etxn 4929

Dr. Donna Morrow
School of Literacies & Arts in Education
University of Canterbury
Private Bag 4800
Christchurch 8140

donna.morrow@canterbury.ac.nz
Ph: 03 364 2987 extn 44109

Tel: +64 3 , Fax: +64 3

Email: @canterbury.ac.nz

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

MANAGEMENT INFORMATION SHEET

August 2009

Web bound: How does the use of ICT support the involvement of children, their families/whānau and their teachers in assessment for learning?

Dear Peter,

I am a teacher at [redacted] Kindergarten and am studying towards a Master of Teaching and Learning degree at the Canterbury University. To fulfil the requirements for this, I am undertaking a research project in [redacted] kindergarten.

This research project will involve setting up a web page within the kindergarten and inviting the children to make decisions about what should be included on it. After that, three selected children will be able to make decisions about what they would like to have on the web page for their parents to view at home (this will include photos and possibly short video clips). No names will be used on the web page. The web page will be password protected. While all measures have been taken to minimise the risk to participants, the parents/whānau need to understand that their children's photos will be on the internet.

The research both within Aotearoa New Zealand and internationally identifies that Information and Communications Technologies (ICT) can be used to enhance the involvement of children, their families/whānau and their teachers in assessment for learning. Children who participate in their own assessment are more likely to see themselves as confident and competent learners. It is also recognised that the collaborative relationships formed between families/whānau and the learning environment can strengthen the learning and development of children.

This project will involve observations of three children within the kindergarten during three stages. (Phase A) Baseline – a measure of existing practice; (Phase B) Web page development and early implementation; (Phase C) Post implementation after 3 months. These observations may include teachers. Each child will be observed for approximately 15-30 minutes in their own home during phase B and phase C. After each observation, the family/whānau will be interviewed. The total time in the home is expected to be between 60-75 minutes. Each family and the teachers will complete a questionnaire to provide

baseline information during phase A. The teachers will be interviewed during phase B and phase C. The observations and interviews will take place over term 4, 2009 and term 1 of 2010.

All participants will receive an information sheet and consent form. These are attached for your perusal. All information gathered is confidential and the resulting report will not contain any identifying details. Pseudonyms will be used to protect the identity of participants. All information will be stored in a locked file in my home with access only available to myself. The raw data will be kept for a minimum of five years before being destroyed. If you wish to receive a summary of the research when the project is completed, please tick 'yes' on the consent form.
If you have any questions regarding this project, please do not hesitate to contact myself or one of my supervisors. If you have any complaints you may also contact the Chair of the Educational Research Human Ethics Committee: see contact details below.

Thank you for taking the time to consider my request. Please fill out the attached consent form to indicate your approval of this study.

Yours Sincerely

Vicky Wilson - Teacher
[redacted]

[redacted]
vicky-wilson@xtra.co.nz

Supervisors

Dr. Alexandra Gunn
School of Education Studies & Human Development
University of Canterbury
Private Bag 4800
Christchurch 8140

alex.gunn@canterbury.ac.nz
Ph: 03 364 2987 etxn 4929

Dr. Donna Morrow
School of Literacies & Arts in Education
University of Canterbury
Private Bag 4800
Christchurch 8140

donna.morrow@canterbury.ac.nz
Ph: 03 364 2987 extn 44109

Tel: +64 3 , Fax: +64 3
Email: @canterbury.ac.nz

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

CHILD'S CONSENT FORM

To be read by researcher

Vicky has explained to me that she is going to watch while I talk to the teacher and my Mum or Dad. She will write a story about what I am doing. She may take photos of me. Vicky has told me that this is school work that she is doing and that she is writing a story about our new web page.

- I can ask Vicky if I have any questions
- I can decide not to talk to Vicky or the teachers at any time
- I do want to help Vicky with her project so I have ticked the YES box and signed my name.
- I do not want to help Vicky with her project so I have ticked the NO box and signed my name.

☐ YES ☐ NO

Signed: _____

Date : _____

Tel: +64 3 , Fax: +64 3
Email: @canterbury.ac.nz

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

FAMILY WHĀNAU CONSENT FORM

How does the use of ICT support the involvement of children, their families/whānau and their teachers in assessment for learning?

- I have read and understand the attached information sheet. I have been given an opportunity to ask the researcher questions. I understand what is involved for the participants.
- I understand this research may be used in future publications.
- I understand that all information will be strictly confidential and the written report will not contain any identifying details. The raw data gathered will only be available to the participants, the supervisors, the markers and the writer.
- I understand that my child will appear on the kindergarten website.
- I agree for my family/whānau and my child to be observed and interviewed in my home for approximately 60-75 minutes.
- I understand that participation is voluntary and I may withdraw at anytime.
- I understand that participation is voluntary and my child may withdraw at any time.

I _____ (please print name) agree to participating in the research as described in the attached information sheet.

I agree to my child _____ (please print name) participating in the research as described in the attached information sheet.

I would like a summary of the research at the end of the project **YES** ☐ **NO** ☐

I **do/do not** want my child's christian name on the website (please circle one).

Signature _____

Date _____

Tel: +64 3 , Fax: +64 3
Email: @canterbury.ac.nz

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

TEACHER CONSENT FORM

How does the use of ICT support the involvement of children, their families/whānau and their teachers in assessment for learning?

- I have read and understand the attached information sheet. I have been given an opportunity to ask the researcher questions. I understand what is involved for the participants.
- I understand this research may be used in future publications.
- I understand that all information will be strictly confidential and the written report will not contain any identifying details. The raw data gathered will only be available to the participants, the supervisors, the markers and the writer .
- I agree to be observed at the kindergarten.
- I agree to participate in two interviews that will take approximately 30-45 minutes each.
- I understand that participation is voluntary and I may withdraw at anytime.

I _____ (please print name) agree to participating in the research as described in the attached information sheet.

Signature _____

Date _____

I would like a summary of the research at the end of the project **YES** ☐ **NO** ☐

Tel: +64 3 , Fax: +64 3

Email: @canterbury.ac.nz

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

MANAGEMENT CONSENT FORM

How does the use of ICT support the involvement of children, their families/whānau and their teachers in assessment for learning?

- I have read and I understand the attached information sheet. I have been given an opportunity to ask the researcher questions. I understand what is involved for the participants.

- I understand this research may be used in future publications.

- I understand that all information will be strictly confidential and the written report will not contain any identifying details. The raw data gathered will only be available to the participants, the supervisors, the markers and myself.

- I understand this project has been discussed with the Head Teacher and other staff members and they agree to the research being carried out and to be participants.

- I have seen copies of the information sheets, interview schedules, questionnaires, and consent forms.

I _____ (please print name) agree to Vicky Wilson undertaking this research project at [redacted] Kindergarten.

Signature _____

Date _____

I would like a summary of the research at the end of the project **YES** ☐ **NO** ☐

Appendix B: Instruments

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

QUESTIONNAIRE FOR FAMILIES/WHĀNAU PHASE A

The purpose of this survey is to gather information on the hard copy portfolio system we currently use for assessment. Please read the following and answer the questions. You may choose not to answer any question.

1. *What do the teachers do that informs you about children's learning?*

_____

_____

_____

_____

_____

2. *What does your child do that informs you about their learning?*

_____

_____

_____

_____

_____

3. *Who makes decisions about what goes into your child's portfolio, on the slide show or on the wall?*

_____

_____

_____

_____

4. *Are you or your child involved in setting goals for your child? If so, how?*

_____

_____

_____

_____

_____

_____

5. *Are you or your child involved in the documenting of your child's learning? If so, how?*

_____

_____

_____

_____

_____

_____

6. *Are there any other ways that you, or your child, are involved in your child's assessment?*

_____

_____

_____

_____

_____

_____

7. *Thinking about when you look at your child's portfolio – Describe what happens. i.e. where are you; who are you with; what do you talk about?*

_____

_____

_____

_____

_____

_____

_____

_____

8. *When you are looking at your child's portfolio, what do you learn about them? How do you know what they have learnt?*

_____

_____

_____

_____

_____

_____

9. *How is the assessment process valuable to you and your child?*

_____

_____

_____

_____

_____

<u>THANK YOU FOR TAKING THE TIME TO FILL IN THIS QUESTIONNAIRE</u>

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

QUESTIONNAIRE FOR TEACHERS PHASE A

This questionnaire is about how you involve children and their families/whānau in assessment for learning. Think about your practices and please respond to the following questions.

1. *How does the family/whānau get informed about their child's learning?*

_____

_____

_____

_____

_____

2. *How do decisions get made about what goes into each child's portfolio?*

_____

_____

_____

_____

_____

3. *How do you document (make visible) the learning of the children?*

_____

_____

_____

_____

_____

4. *Do you involve families/whānau in setting goals for their children? If so, how?*

_____

_____

_____

_____

_____

5. *Do you involve children in setting their own learning goals? If so, how?*

_____

_____

_____

_____

_____

6. *Do you help children contribute to assessment for learning? If so, how?*

_____

_____

_____

_____

_____

7. *Do you help families/whānau contribute to assessment for learning? If so, how?*

_____

_____

_____

_____

_____

_____

8. *When you look at a child's portfolio with them – Describe what happens. i.e. Who initiates this? What do you talk about? Who is present? How often does it happen?*

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

THANK YOU FOR TAKING THE TIME TO FILL IN THIS

QUESTIONNAIRE

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

INTERVIEW SCHEDULE-PHASE B

Family/whānau

To be carried out with families/whānau after observing the children in their own homes and at kindergarten during the setup phase (phase B). The interviews are informal and will be guided by the observations undertaken and the information gathered from participants.

Suggested questions to be covered are:

What are the benefits, if any, now that you can access information about your child on the web page?

What differences, if any, does it make to your interactions with your child being able to access assessment information in your own home at any time?

When accessing the web page, how does this inform you about your child's learning?

Thinking about when you access the web page – Describe what happens. i.e. Where are you? Who is there? What do you talk about?

Does the web page support your involvement in the assessment process? If so, in what way?

What disadvantages, if any do you perceive of having a web page to document children's learning?

What advantages, if any do you perceive of having a web page to document children's learning?

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

INTERVIEW SCHEDULE-PHASE B

Teachers

To be carried out with teachers during the set up of the web page (phase B). The interviews are informal and will be guided also by the observations previously undertaken.

Suggested questions to be covered are:

Have you noticed children getting involved in using the web page? If so, what have you noticed?

Have you noticed any families/whānau getting involved in using the web page? If so, what have you noticed?

What if anything, is different about how children talk about their assessment for learning? Give an example.

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

INTERVIEW SCHEDULE PHASE C

Family/whānau

To be carried out with families/whānau after observing the children in their own homes and at kindergarten after the web page has been in use for several months (phase C). The interviews are informal and will be guided by the observations undertaken and the information gathered from participants.

Suggested questions to be covered are:

Now that we have a web page and we have been using it for several months,

What do you perceive the benefits to be (if any) of being able to regularly access information about your child on the web page?

When accessing the web page, how does this inform you about your child's learning?

Thinking about when you access the web page – Describe what happens. i.e. Where are you? Who is there? What do you talk about?

Have you noticed any changes in you r interactions with your child when you are accessing the web page? If so, what are they?
Does the web page support your involvement in the assessment process? If so, in what way?

What disadvantages, if any, do you perceive of having a web page to document children's learning?

What advantages, if any, do you perceive of having a web page to document children's learning?

College of Education

INTERVIEW SCHEDULE C

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

Teachers

To be carried out with teachers after the web page has been set up for several months (phase C).

Suggested questions to be covered are:

Now that we have a web page,

What do you think is working well in our assessment for learning process?

What do you think could work better in our assessment for learning process?

What has been the impact of having a web page to enable you to involve children in their assessment for learning?

What has been the impact of having a web page to enable you to involve families/whānau in children's assessment for learning?

What, if anything, do you find yourself doing differently with assessment for learning?

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

REVISED INTERVIEW SCHEDULE C

Teachers

To be carried out with teachers after the web page has been set up for several months (phase C).

Suggested questions to be covered are:

Now that we have a web page,

What has been the impact of having a web page to enable you to involve children in their assessment for learning?

Have you noticed any changes in your interactions with children when accessing the webpage and implementing assessment for learning practices?

What has been the impact of having a web page to enable you to involve families/whānau in children's assessment for learning?

I have noticed that there have been no interactions involving teachers and children and the web page, do you have any thoughts on why this might be?

Previously you mentioned that involving children in the uploading process would promote discussion. Has this occurred? and Why do you think this is?

What, if anything, do you find yourself doing differently with assessment for learning now that there is a web page?

What disadvantages, if any, do you perceive of having a web page to document children's learning?

What advantages, if any, do you perceive of having a web page to document children's learning?